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VOL. LXXXVI.

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THE ARCHITECT

AND

Contract Reporter.

A WEEKLY

ILLUSTRATED JOURNAL

OF

ART,

CIVIL ENGINEERING,

AND

BUILDING.

Architectura est scientia pluribus disciplinis et variis eruditionibus ornata.—VITRUVIUS.
Toute la beauté d'un bâtiment s'évanouit au moment, que l'on change quelque chose d'essentiel à la symétrie—BLONDEL.

VOL. LXXXVI.

JULY TO DECEMBER 1911.

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FORTHCOMING EVENTS.

Saturday, July 8.

Architectural Association : Second Summer Visit to Hill Hall, near Epping, and the Church of St. John, Epping (Messrs. Bodley & Garner, architects).

Northern Architectural Association : Students' Sketching Club Meeting.

Manchester Society of Architects : Visit to Selby Abbey. Leader, Professor S. H. Capper, M.A.

Tuesday, July 11.

Guild of Architects' Assistants : Visit to British Museum Extension (Mr. J. J. Burnet, A.R.S.A., architect).

Saturday, July 15.

Institution of Municipal Engineers : Annual Meeting of the Western District at Worcester. A paper by Mr. B. Wyand on "Municipal Engineering as a Profession."

Tuesday, July 18.

Northern Architectural Association : Annual Excursion at Wynyard Hall and Grounds.

Wednesday, July 19.

Institution of Municipal Engineers : Annual Meeting of the North-Western District at Manchester.

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THE DESIGN OF A HOUSE.

IT is coming to be realised that the designing of a house is something more than the mere arrangement of a number of rooms fulfilling various functions or of the disposition of certain architectural features to form a pleasing exterior, either in a formal or a picturesque manner. Something more than this is needed to render a house a home. And the quality of homelikeness is now by way of becoming recognised as an essential of house design. Moreover, the house in order to be a home must be a beautiful house, and the beauty that it possesses must be of a certain order, and that order must be consonant with the owner or inhabitant. Whether mansion or cottage, some definite idea must be expressed. Hence there is a range of variation in the beauty that the house must possess, and as no two men are in all respects absolutely alike, it follows that no two houses should be absolutely alike if they are to reflect, as they should do, the idiosyncrasies of their owners.

Therefore the house of the future, small as well as large, must be, if a satisfactory home, individualistic. This is the charm and the strength of the Gidea Park experiment. The ordinary householder can better realise from a concrete realisation in the solid the design that most nearly approaches to the ideal that fits him best. But the weakness of Gidea Park lies in the fact that after all the houses are ready-made, and as few men look well dressed in a ready-made suit of clothes, so few will find a completely satisfactory home in a ready-made house, even though it be skilfully and admirably designed by an architect of artistic ability.

The perfect home can only be evolved by an architect who is in touch with his client and who has imbibed something of that client's personality before he makes his design. Hence the presentment of a design is but the first step to success by the bringing together of an architect who produces and a client who requires the expression of a particular idea.

Now the presentment of a design in the solid as at Gidea Park is an expensive matter, and since it cannot, save in exceptional instances, result in the perfect consonance of the householder and his home, it is desirable that some less expensive means should be found of bringing together the architect and the client who are likely between them to bring into being the home that shall be perfectly fitted to and expressive of the individuality of its owner.

One means that has been not infrequently adopted to attain this end has been the publication of books dealing with house design and, more or less frankly, advertising some particular architect. Thus we have before us, at the present moment, two volumes* published by Mr. Batsford, in which a profession is made of instructing the man who is interested in house or home-building in the principles and vital points of house design.

In his review of English House Design, Mr. Willmott has given a charming account of the Old English house, rather from the point of view of design than of history, though necessarily there is so much of historical matter as is concerned with the chronological development of design. The author discourses on the chief principles of house design, which he lays down to be proportion, scale, rhythm, colour and texture. He appears to us to confuse proportion and scale to some extent, although much of his explanation of the latter principle is excellent. This confusion is due to the prevalent lack of precision in speaking, as when we say that two things are "out of proportion" when we mean out of scale. This may be near enough for ordinary talk, but when we come to analyse the

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* *English House Design:* A review, being a selection and brief analysis of some of the best achievements in English domestic architecture from the sixteenth to the twentieth centuries, together with numerous examples of contemporary design. By Ernest Willmott, F.R.I.B.A. (B. T. Batsford. 10*s.* 6*d.* net.)
The Essentials of a Country House. By R. A. Briggs, F.R.I.B.A. (B. T. Batsford. 7*s.* 6*d.* net.)

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principles of art we must be precise in our definitions and in our diction. Proportion as a principle of architectural design does not bear the same meaning as is attached to the word in ordinary everyday language. The proportion between the width and height of an obelisk is a very different thing to the proportion between those of a pyramid. In neither case are these dimensions "out of proportion," but in either they may be good or bad, not by variation in amplitude, but by the existence of consonance or dissonance between them.

So also in our author's discussion of colour, there is a confusion of idea in the assumption of an antithesis between harmony and contrast. Contrasts may be in perfect harmony. They may be on the other hand produced by the opposition of violently dissonant keys, as in the case of red brick walls and roofs of hard purple-grey slate to which reference is made. We must be careful to distinguish between harmony and symphony. The close alliance though not identity between colour and texture is rightly considered and their interdependence well explained.

The influence of Philip Webb, Bodley, Garner, and Norman Shaw on the modern development of domestic architecture forms the connecting link between the author's discussion of old work and his examples of contemporary design, which are well chosen and typical. We may well excuse the inclusion of three houses designed by Ernest Willmott.

The essentials of a country house as enunciated by Mr. Briggs are pithy recommendations what to do and what not to do, generally marked by common-sense and experience and illustrated entirely by examples of what the author has done, and he has done a great deal.

NOTES AND COMMENTS.

We are glad to learn that the Bridge House Estates Committee of the Corporation of London have engaged the services of the following architects to advise them in connection with the building of St. Paul's Bridge: Sir William Emerson, F.R.I.B.A., Mr. T. E. Collcutt, F.R.I.B.A., and Mr. J. J. Burnet, A.R.S.A., F.R.S.Ed., F.R.I.B.A. And we congratulate them on the selection of the advisers they have made. There should now be a truce in polemics, and the scheme that is next put forward by the Corporation, as approved by these three eminent architects, must be accepted without question, whether it be the scheme already laid before Parliament or some other. The ambitious proposers of other arrangements may now pause and relinquish their efforts to press forward their own ideas.

Those of us who expected from the announcement that the new postage stamps would be designed by Mr. Bertram Mackennal that we should at last have something that would take a respectable position amongst artistic work in philatelic collections, cannot help being more disgusted than even the ordinary public at the result. It is characteristic of official ideas of art to think that a satisfactory combination could be made of the decapitated head of our uncrowned King, "reproduced from a photograph," and a frame designed by Mr. Mackennal. The frame is in itself such an unbalanced composition that we should imagine it to be "reproduced" from Mr. Mackennal's design.

We were at one time under the impression that Bournville was a model village, owing its existence and excellence in a considerable degree to philanthropy, but it seems that the effort to make it pay as a commercial undertaking is having the natural result that the rents and rates are too high for the tenants to pay. Additional discontent has been caused by the separation of payment for rates from that for rent. The working man's finance is not strong enough to face anything but a weekly rent. He can manage to pay 8*s*. a week much better than 7*s*. a week plus 10*s*. once a quarter.

That eminent artists do not necessarily make excellent assessors in competitions is somewhat in the nature of a truism, particularly when they, as is frequently the case, make a practice of abstaining themselves from competitions, and have no special experience in the class of buildings upon designs for which they are appointed to adjudicate. Then, again, eminent artists in architecture have not seldom attained their eminence by a skilful disregard of limitations which have hampered their compeers and prevented these also from attaining eminence. A client who wishes to spend £10,000 on a house is persuaded, or forced, to spend £12,000 or £15,000 and gets a fine work of art. Hence, the eminent artist is not inclined, when assessing in a competition, to regard too closely the conditions, and, even though nominated by the President of the Royal Institute, does not feel himself strictly bound by the regulations of the Institute. He sees a fine design and, although it cannot be built for the money and is too big for the site, his artistic enthusiasm will not allow him to rule it out of court, as he should do, according to the conditions of the competition and the regulations of the Institute.

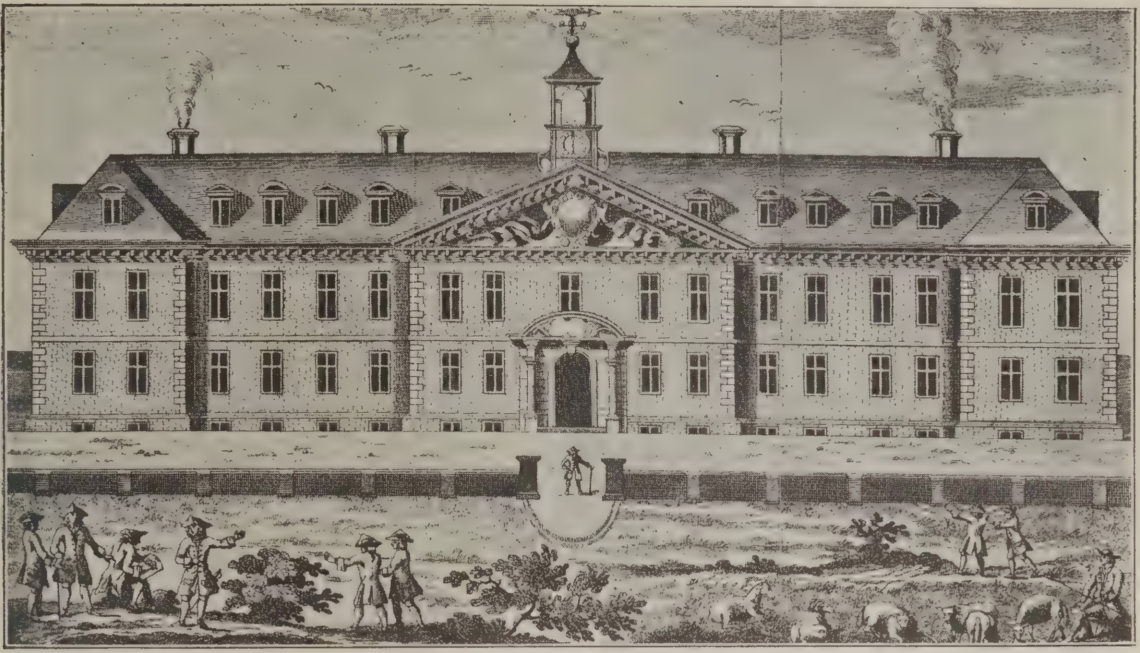
It is not surprising, therefore, to find that in the case of the preliminary competition for the new library and art gallery at Manchester, Mr. Reginald Blomfield, the assessor, has, if the statements contained in a letter to the *Manchester Guardian* by Mr. George H. Willoughby are correct, condoned nonconformity with the conditions of the competition on the part of some of the competitors. True, the variations are, for the most part, not very serious, for we must allow the assessor to use his own judgment in forming an opinion on the cost of the designs before him, and this is the greatest grievance of Mr. Willoughby. Mr. Blomfield thinks that this building could be erected at one shilling per cubic foot. It does not matter in the least if Mr. Willoughby, the city architect of Manchester, and everybody else in the world know better. The opinion of an assessor must be respected even if it be palpably wrong.

The source of all the trouble is that the Corporation of the city of Manchester want too much for the money they intend to spend and the site on which they propose to build. It is more than a tight fit to provide satisfactorily the accommodation demanded on an area of 5,500 square yards for £250,000. Herein lies an advantage of the double-barrelled type of competition. Those architects who are in the first flight have a chance of reconsidering their designs, and the promoters have an opportunity of relaxing their conditions. Competitors who expect literal compliance with conditions should abstain from competitions in which eminent artists without special experience are assessors.

In the *Art Journal* for this month is commenced a series of papers on the interiors of English mansions, Holkham being chosen for a start. The description of the interior is, however, confined to furniture, though some of this is interesting as having been designed by Kent. Furniture forms quite a large part of the contents of the number. "Silver candlesticks of the seventeenth century," described by H. J. L. J. Massé, show some quite architectural designs.

A certain amount of architectural interest attaches to an article on "Some antique mirrors" in *The Connoisseur*, which is accompanied by a large number of illustrations of carved frames. Some Sussex fire-backs are also illustrated, and a coloured plate of the front of the manor house at Hitchin well represents the restoration of this eighteenth-century building. The number for this month is generally more redolent of art than of bric-à-brac.

The account of All Saints' Church, Milford-on-Sea, Hants., by W. Ravenscroft, F.S.A., is concluded in this month's *Antiquary*, with good reproductions of pencil drawings of parts of the building.



THE WEST PROSPECT OF MORDEN COLLEGE, BLACKHEATH. (From Richard Blome's Engraving.)

The Parks and Open Spaces Committee of the London County Council have reported:—Our attention has been directed to the condition of the York water-gate at the Victoria Embankment Gardens. A detailed examination has been made of the structure, as a result of which it is found that the masonry facework is in a condition of advancing decay, while in many places the stone is mouldering. There are also heavy incrustations of sooty matter on the undersides of the projecting ornamental features. We are advised that the decay of the stonework is caused by the action of sulphuric acid in the smoky atmosphere, and that, unless steps are taken to arrest the decay, the ornamental features of the gate will soon be obliterated. In order to preserve the stonework and prevent further decay, we are of opinion that it should be treated with baryta water in a manner similar to that adopted in the case of the Chapter House, Westminster, the effect of this treatment being to re-form the mouldering portions into solid stone of such a composition as to be resistent to the attacks of the atmosphere. It is impossible to state definitely the cost involved by this treatment, but we are of opinion that expenditure of £75 should be sanctioned in respect of the work. There is no provision in respect of the proposed expenditure in the estimates for the current financial year, and, having regard to the necessity for executing the suggested work of renovation as soon as possible, we have asked the Finance Committee to submit a special estimate of £75 in respect thereof. We recommend—*a*. That, as a matter of urgency within the meaning of standing order No. 222 (2), the special estimate (No. 359) of expenditure on maintenance account of £75, submitted by the Finance Committee in respect of the treatment with baryta water of the York water-gate, Victoria Embankment Gardens, be approved as an estimate of costs, debt or liability under section 80 (3) of the Local Government Act, 1888. *b*. That expenditure on maintenance account not exceeding £75 be sanctioned for the purpose specified in the foregoing resolution (*a*). The report of the Finance Committee under standing orders is to the following effect:—The finance committee, having considered in its financial bearings the above estimate, submit the same as chargeable to maintenance account.

MORDEN COLLEGE, BLACKHEATH.

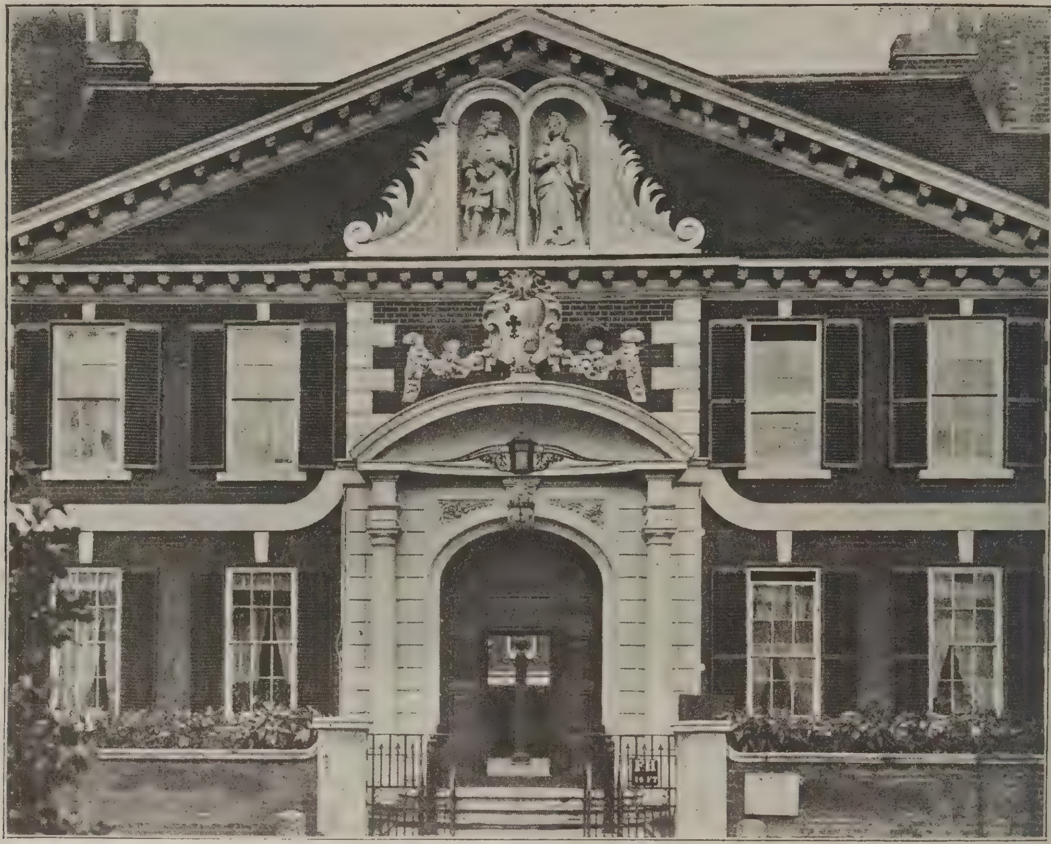
The requirements for which this building was designed are entirely unique, and that Sir John Morden should have conceived the idea of founding and endowing a home exclusively for those who had been at some time extremely wealthy at least convinces us that he was a man of very varied experiences. Unfortunately, little is known of his early history—even regarding the date of his birth there is considerable doubt, for if the registers in St. Bride's, London, are correct, we should have to believe that he was baptised about a week before he was born. It appears from a record preserved in the Heralds' College that he was born on August 23, 1623, and was the son of a certain George Morden, a goldsmith of the City of London. We know that at a comparatively early age he became a member of the "Turkey Company," and put his whole fortune in a number of trading vessels, which he sent laden with cargoes on voyages to the ports of the Mediterranean, Aleppo, and elsewhere. Returning to London, he awaited the result of the enterprise. Years went by, and eventually, believing his wealth to be lost, he was reduced to penury and obliged to take service with a tradesman. Exactly how long he was in this position is not known, but at least it was sufficient time for him to realise the hardships of those working under similar conditions around him, and when he again prospered he devoted a large portion of his fortune to the cost of erecting and endowing the College in 1695.

The situation selected must have been well suited for those who would spend their remaining days in peace and quietude. Even to-day, with modern buildings ever increasing in number and narrowly encroaching upon it, the College cannot be thoroughly seen from without its own extensive and well-kept grounds.

Wren was quite at home with any problem he had to face, and here no less that in St. Paul's Cathedral we can notice his amazing resourcefulness and keen imagination. He never allowed mere ornamentality to stand in the way of, or falsify structural necessity, and it would be difficult to find a building in which comfort and effect have been so successfully combined.

It is a little uncertain what his original design was like. If we can rely on the accuracy of Richard Blome's engraving of the College (now in the British Museum), which was made during its erection, it would seem that many deviations were made from his first scheme in the building as it appeared on completion. For instance, the row of dormer windows shown on the engraving never became part of the finished building, and the arrangement of the central portion above the doorway differs entirely from its treatment depicted in the drawing. It may be that owing to the mechanical methods of the draughtsmen of the period, the engraving, like many others, is thoroughly inaccurate. But on account of the care taken in certain parts it seems more likely that it is a fair representation of Wren's first idea, and that such features as the niches containing the figures of the founder and his wife and certain other details were later ideas, conceived, adopted, and carried out as the building arose, and, therefore, did not appear in the engraving that was made before completion.

The building is mainly of brick, with the cornices of wood and some of the more important features of stone. The



MORDEN COLLEGE.—DETAIL OF THE ENTRANCE.

western facade, which is seen on entering the grounds, is a long, low, and well-proportioned front, consisting of a central portion emphasised at the angles by stone quoins and crowned by a pediment containing two niches. It is difficult to quite understand what could have induced Wren to use the extremely unsightly ornament at the sides of these niches. According to the engraving already referred to, they were not arranged for in the original scheme, and were probably designed and executed later by Cibber, the chief sculptor under Wren, who was the author of the very admirable figures of Sir John and Lady Morden at present occupying the spaces.

The entrance doorway, which is of stone, is made up of columns of the Roman Doric order, supporting an entablature and segmental coved head, above which is the shield bearing the armorial devices of the founder and his wife, the carving both here and elsewhere in the building being the work of the Grinling Gibbons school.

The wings to this façade are treated with great simplicity, being quoined at the angles, and having on their inner sides two splendid doors, which have recently been blocked up. Originally, all the windows had mullions and transoms, and were fitted with casements; these have now been replaced by sash frames, and external shutters added.

The general effect of this simple façade is not unlike the front of the Widows' College in the Close of Salisbury. It was founded by Bishop Seth Ward a few years earlier, and is generally believed to be one of the several probable designs by Wren in that district. Considering the similar uses for which the two buildings were intended, it is not unreasonable to suppose that the latter example is actually the prototype of the finer and altogether more mature College at Blackheath.

The internal court of Morden College is thoroughly in keeping with the general external design, and is certainly quite as fine. It is rectangular in its main proportions, and is entirely surrounded by a cloister which gives access under cover to the forty members' rooms situated around it.

The upper storey is of brick, and is supported on stone columns of the Doric order, placed on lofty bases. Variety and interest are given to each of the four sides by the introduction of piers with three-quarter attached columns. Above the entablature these support pilasters, which are continued to the wooden cornice, and finally crowned by pediments—on two sides triangular and on two segmental.

The vestibule to the chapel lies across the courtyard and immediately opposite the entrance. It is rectangular in plan, the long sides being panelled to about two-thirds of the total height, and crowned by a cornice, ornamented with peculiarly graceful carving, thoroughly characteristic of the Gibbons school. On the east side is a pair of carved and panelled doors, enclosed by an elaborate setting in the form of a four-centered arch with finely carved spandrels. We are told that this doorway was copied a short time ago by a London firm, and erected in the Museum at Vienna.

The chapel itself is interesting, in so far as it shows Wren's extraordinary powers of treating a small interior with refinement and grace, and yet with considerable richness. It is very simple in its general effect; the walls are panelled to just below the windows, and the ceiling, which is of barrel form, springs from a cornice. The pulpit, reredos, and organ gallery are quite exceptionally well designed and executed; the former is perhaps of the greatest interest, as it has inlaid panels, one containing the founder's monogram.

The dining-hall and library are comparatively recent additions, the latter being erected in 1861 at the bequest of Charles Kelsall, of Hythe, a son of a former member of the College. The piece of tapestry in the hall representing David returning in triumph from the slaughter of the Philistines is said to have been worked by Lady Morden, and hung in the chapel prior to its removal to the present position. There are two good portraits of Sir John and Lady Morden painted by Sir Peter Lely, also the coat, spurs, and heraldic trophies used at the founder's funeral. The billiard-room and kitchen complete the College buildings. The latter is a fine, large apartment next the hall, still remaining in much the same condition as when first built.

The suite of apartments for each pensioner consists of a living-room, bedroom, and a bath-room for every two. All the rooms are extremely comfortable, well-lighted, and of a convenient size. Originally, the members wore the College gown bearing an oval silver badge, on which were worked the arms of Morden and Brand (the maiden name of his wife). The use of this gown was, however, soon discontinued, each wearing clothing according to his own taste.

This is somewhat different to the usual class of building that Wren designed, and shows the great versatility of his powers. Indeed, although more than two hundred years have elapsed since the foundation of the College, little could now be done to further add to the comfort of the members, and certainly still less to improve the design as a whole. It is in a building of this description rather than in some of his more pretentious works that we can best appreciate the art of

MORDEN COLLEGE.—THE WESTERN FACADE.

Wren, and realise the great step forward that he made in English architecture.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE Annual Dinner of the Royal Institute was held on Tuesday, July 4, at Fishmongers' Hall, Adelaide Place, London Bridge. The chair was taken by Mr. Leonard Stokes, President. Those sitting at the presidential table were His Grace the Lord Archbishop of Westminster, the Lord Mayor, the Lord Saye and Sele, Mrs. Leonard Stokes, Sir Edward Poynter, Bart, P.R.A., Sir L. Alma-Tadema, O.M., R.A., Sir Thomas Barlow, Bart., K.C.V.O., Mr. Edward White (Chairman L.C.C.), Sir H. T. Butlin, Bart., Mr. H. A. Miers, F.R.S. (Principal of the University of London), Alderman Sir C. Johnston, Sir Henry Buckingham, Sir Henry Morris, Bart., Sir William Emerson, Sir James Linton, P.R.I., the Hon. John Wanamaker, Sir Edward H. Busk, Sir Charles Lawes-Wittewronge, Bart., Sir Frank Short, R.A., Sir Ernest George, A.R.A., Sir Aston Webb, C.B., C.V.O., R.A., Very Rev. Professor Inge, D.D., Judge Rentoul, Sir Thomas Brock, K.C.B., R.A., Mr. Edgar Horne, M.P. (President of the Surveyors' Institution), Mr. Philip Morrell, M.P., Mr. Gerald Horsley (President of the A.A.), and Sir Lawrence Gomme, F.S.A. Among the other guests were Mr. Frank Dicksee, R.A., Sir C. Henry, Bart., M.P., Mr. W. Goscombe John, R.A., Mrs. Goscombe John, Mr. G. Bird Godson (President of the London Master Builders' Association), Mr. W. Fleming (Secretary of the Royal College of Physicians), Mr. J. W. Domoney (Chairman of the Bridge House Estates Committee), Mr. G. E. Bond (President of the Society of Architects), Mr. James S. Holliday (President of the Institute of Builders), Sir J. Wrench Towse (Clerk of the Fishmongers' Company), Mr. J. G. White (President of the National Federation of Building Trades Employers), Mr. Henry C. Charlewood (President of the Northern Architectural Association), Professor Beresford Pite, Sir Brumwell Thomas, Mr. Henry T. Hare, Mr. L. A. Atherley-Jones, K.C., M.P., Mr. C. MacArthur Butler (Secretary of the Society of Architects), Mr. T. Costigan (Secretary of the London Master Builders' Association), Mr. S. Forrest Cowell (Secretary of the Royal College of Surgeons), Mr. Paul Waterhouse, Mr. John W. Simpson (Vice-President R.I.B.A.), Mr. James S. Gibson, Mrs. Gibson, Mr. P. F. Rowell (Secretary of the Institution of Electrical Engineers), Mr. J. Y. W. MacAlister (Secretary of the Royal Society of Medicine), Mr. Marion H. Spielmann, Mr. Lewis Hind, Mr. A. G. White (Secretary of the National Federation of Building Trades Employers).

The toast of "The King" was given by the President. It was followed by the second loyal toast, viz., "Queen Mary, the Prince of Wales, Queen Alexandra, and the other members of the Royal Family."

Mr. H. A. Miers, F.R.S., Principal of the University of London, proposed "Architecture and the Sister Arts." He said his ignorance of the subject of the toast reminded him of the situation of a certain Englishman who found he was the only Englishman present at a dinner attended exclusively by Scotsmen. In proposing a toast he announced he was a Scotsman, and when the applause had died away he added, "neither by birth nor by inclination." But he at any rate could say that he had had an interest in architecture ever since the time when he was led to play truant after reading Parker's "Glossary of Architecture" in order to visit a neighbouring church. No one could have had such a career as he had had without realising what a part architecture plays in life. No doubt the position now occupied by Oxford and Cambridge was partly due to their buildings. When he came from Oxford to London he was struck not so much by its inspiring influences as by the deplorable design of some of its buildings. Some years ago he had been asked by a professor to say where buildings expressing an idea were to be found. He found it quite difficult to find out the desired kind of structure in London. London University was typical in its shortcomings. For instance, it had no hall or residence which it could call its own. Even the cabmen hardly knew where it was. Indeed, there seemed to be some confusion between London University and a Union. He was ashamed to confess that before he entered the room he did not know which were the sister arts. An attempt was being made in London, through the enterprise of Professor Geddes, to have in Crosby Hall buildings which were suitable to their surroundings. He had often been struck in this country by the need of that alliance between sculpture and architecture which is so splendidly manifest in Greece. Nowadays the ordinary traveller fails to realise the important part which sculpture played in old buildings. Visiting gallery after gallery containing a large number of examples of detached architectural sculpture, they cannot get an idea of their appearance on the buildings where they first stood. One of the present needs of London was that it does not possess a sufficient number of casts from the antique. There was now being held in London an exhibition of the discoveries by Professor Flinders Petrie, which takes one back to the beginnings of

MORDEN COLLEGE—THE COURTYARD

painting. He knew that the English were not to be regarded as an artistic nation, but there was now a desire for the artistic application of architecture in the development of building estates. The authorities of London University were endeavouring to take some steps in the furtherance of architectural education by combining the two schools so as to make one large school which would, he hoped, have the support of those interested and of all architects. He hoped to be soon able to say they were teaching sculpture. The University appreciated the value of architecture and the sister arts and in every way encouraged them.

Professor A. Beresford Pite, F.R.I.B.A., who responded for Architecture, said his colleague, Professor Blomfield, had designated architecture "the Mistress Art." He offered no apologies for that, and he did not hesitate to accept the pedigree and the compliment. But regarding them as sister arts, what an extraordinary insubordination there was among those sisters! That fact could not be denied by any keen observer. Architects begged their sisters to try and restore that mental equilibrium which at one time prevailed. But there was now a larger and deeper interest in the beauty of our cities at large. The man in the street could not close his eyes to the buildings around him in the streets. He would venture to congratulate the Lord Mayor upon presiding over one of the most beautiful cities in the whole world. Within her limits were the Palace of Greenwich, Somerset House, Waterloo and London Bridges, to say nothing of St. Paul's Cathedral and a crowd of Renaissance buildings such as no other city possesses. What other city had such a collection of mediæval structures as the Tower of London, Westminster Hall, St. Bartholomew the Great, the Temple Church, and Westminster Abbey? Architecture in London was certainly well served in the past. It was difficult to speak of the future. Town-planning was architecture in its largest ideas. Parliament had recently conferred on the Corporation the honour of opening up and exhibiting a view of St. Paul's which would be unrivalled. They congratulated the Corporation upon getting the assistance in the matter of the proposed Thames Bridge of three of the Institute's distinguished members, men in whom they felt the greatest confidence. But he would suggest the question was too large to be left to architects. It concerned everyone; it affected the dignity of the whole City, and their appreciation of the greatest monument of Renaissance art we possessed as a nation. Nor was he sufficiently sanguine to believe that the solution of that problem is quite near. It is complicated by such questions as the safety of the dome and financial matters. But public influence would, he was sure, support the Corporation in any scheme which was sufficiently large to do justice to St. Paul's. They hoped to be able to drink at no very distant date the health of St. Paul's Bridge.

Sir Edward J. Poynter, P.R.A., replying for Painting, said he felt some difficulty in approaching a subject so vast, in view of the very brief limits imposed, for, short of a studied lecture, there was no way of dealing adequately with a topic so complicated and so questionable in its aspects. Nor did he know exactly how he should best return thanks for Painting as an abstract proposition. If the toast was intended as an expression of a kind wish for the prosperity of the art from a commercial point of view, he wished to summon the ghost of Sir Joshua or one of his contemporaries to reply to it, for in the picture market they are experiencing a success which many painters of to-day may well look upon with envy. As for the *success d'estime,* he might truly say that the English school has of late years gained it in a remarkable degree. In all international exhibitions held in the last twelve or fourteen years the English painters have, to say the least of it, shown themselves second to none, and notably at the present exhibition at Rome, where the English section is acclaimed as the most distinguished feature. He would venture to say that if the English school of painters—he disliked the word "British," although that was what he meant—will keep their individuality and cultivate that love of beauty which has been its distinguishing characteristic from the days of Reynolds, Constable, and Turner, he ventured to affirm that they had nothing to fear in any competition for honours in the world. Painting and Sculpture were, by the toast, rightly linked with Architecture. Painting takes its highest form and fulfils its noblest function when used for the decoration of great works of architecture. It was the first use to which painting was put, and the majority of its greatest works were produced for such a purpose, adding a lustre to ecclesiastical and public buildings and private palaces which frequently outshines the edifices which they adorn. Such works as those of Michel Angelo and Raphael in the Vatican, of Giotto in the Arena Chapel, of Ghirlandajo in Santa Maria Novella, of Tintoretto in the Scuola of San Rocco, were a few among hundreds of examples which the combination of painting with architecture presented in Italy alone. If these buildings would suffer by the loss of the paintings, it might with equal justice be said the painter would never have risen to such heights but for the architecture whose beauty he was called on to enhance, for the treatment of great spaces in noble architectural surroundings led to the highest form of expression which the art of painting could achieve. He had frequently dwelt on the importance of giving opportunities of this kind to painters. The mere fact that an artist felt himself to be working for something that would permanently appeal to the public, that he was doing something of national importance, was a stimulus to him to bring forth both his intellectual and his artistic faculties to their highest use. Such efforts were the best antidote to that loose method of work from nature which too often formed the staple of exhibitions. He sincerely hoped, in the interests of art, that public spirit would not stop at the completion of the corridor in the House of Lords which had proved such a success, but would carry forward further the scheme of decoration originally proposed for the Houses of Parliament. There was another field of association. From the time of Giotto to that of Tintoretto there was not a painter in Italy who had not a thorough knowledge of architecture, and did not understand the value of architectural backgrounds and accessories as an adjunct for his compositions. Those in this country who are capable of so enriching their work might almost be counted on fingers of both hands. This lamentable ignorance of a great and closely allied art was a serious handicap. It was his hope that in the Royal Academy schools a course of architecture would before long be imposed on the painter students, instead of being taken as a voluntary exercise.

Sir Charles Lawes-Wittewronge, Bart., President of the Royal Society of Sculptors, in replying on behalf of Sculpture, said that sculpture was a particularly difficult form of art; it was more difficult to practise that art than to talk about it. Nothing very fine in sculpture had been executed apart from architecture. The Royal Society of Sculptors was only a young society, but they have had a good beginning. They were immediately recognised by the Board of Trade, who entrusted them with the organisation of sculpture exhibitions. There were two in the present year, viz., that at the White City and the other at Rome. To-day the architects of this country were looking more towards sculpture for the decoration of their buildings. He was confident that English sculpture of the future would hold its own with all the schools of the world.

Sir Aston Webb, C.B., C.V.O., R.A., remarked, in proposing his toast of "The Houses of Parliament," it was usual on occasions of that sort to say that Parliament had little to do with matters of art. But in the past two or three years Parliament had had more to do with questions of art than before. The House of Lords had dealt with several important matters, including the decoration of their own House. The House of Commons had in the last few days expressed their opinion on a very important question. Up to the last moment it was not known what the result would be, and it was, perhaps, the first time the House of Commons had given their opinion on such a matter. Then there were the measures for town planning. As that Act was more and more used it would be found to be more and more a splendid thing. On such lines as these the Houses of Parliament will assist architecture. Neither they nor any other body can produce designs. But what public bodies can do and are doing is to see that when great public schemes are brought forward they are put before those who are ready to prepare a scheme. It is on the lines of the Housing and Town Planning Act that the Legislature can do so much for the art of architecture and for the people. Bright and healthy homes and beautiful surroundings will increase and multiply the health and happiness of the people of this country.

The Rt. Hon. Lord Saye and Sele said that he could best express the difficulty of replying at the present juncture for "The House of Lords" by describing it in someone else's words as skating on thin ice over a burning volcano. They were engaged in passing a Bill which some thought would build their house and some thought would pull it down. If they were to build their house, they had a very difficult task to perform, as they did not know what the quantities were. They were told there were six hundred noble lords, but throughout his lengthy acquaintance with the House he had never seen more than two hundred. He himself might claim particular interest in architecture as the nearest living descendant of William of Wykeham, as residing in the house he resided in, and as having a son who hoped to be an architect. It was consequently a pleasure for him to be associated with the toast.

Mr. Edgar Horne, M.P. (President of the Surveyors' Institution), replied in the unavoidable absence of Mr. John Burns, P.C., M.P., for the House of Commons. He said he heartily agreed with the suggestion that they, as legislators, were architects engaged in preparing designs, some of a State character and some of a promiscuous kind. Perhaps, however, they were not so much architects as decorators, for they did not think so much of their foundations as of the gold and tinsel trappings.

Mr. Paul Waterhouse, F.R.I.B.A., proposed "The Guests." There was not, he said, very much architecture in the Farringdon Road, but there were barrows. On those barrows they could buy old books and comparatively modern shellfish. He sometimes indulged in the purchase there of books to the extent of a penny, twopence, threepence, or even fourpence. A short time ago he came into possession of a Latin volume by a Dutchman which dealt with the whole art of the entertainment of guests from the earliest times down to his own day. From this book he gathered that the entertainment of guests had very much improved. The author quotes a poet (probably Juvenal) who took this very commercial view, "What on a thriftless wife you spend is money merely spent; but if you use it on a guest it will yield, like money Hebrews lend, interest at 100 per cent." That sentiment was, of course, in thoroughly bad taste. But they, as architects, were aware that they had obtained a company of guests who had given them the greatest possible pleasure. He might be allowed to explain why he had been selected to propose the toast. There was an excellent new rule in the Royal Institute which might be called an insurance against old age. The Institute was ruled (or supposed to be) by a Council. And lest it should be found that old age was the only qualification of some of the members to sit on that Council, a simple piece of machinery has been invented by which the ancient member can be silently removed. Upon himself and upon another member there had just fallen the crown of antiquity. Now it was an English tradition that when a man becomes too old for work he is qualified to make after-dinner speeches. Hence the authorities had chosen him to propose that toast. The solar system was an important part of the universe, the earth is an important part of the solar system, Great Britain is an important part of the earth, London is an important part of Great Britain, and the Lord Mayor is the most important man in London. Those who had studied the record of the present occupant of that high office would have observed that he is fulfilling his functions and engaging in those many interests in which a Lord Mayor may engage—and which are far more than Metropolitan in character. In Sir Vezey Strong they had a man who upheld the traditions of his office nobly and has gone *con amore* into those works in which a Lord Mayor may, so to speak, let himself loose. He was permitted to couple with the name of the Lord Mayor of London that of His Grace the Lord Archbishop of Westminster. It would not be becoming of him to speak of the great organisation of which Archbishop Bourne was the head, and there were others who knew more than he did of his Grace's life of love and service in London. But he could not allude to his church without thinking of the many architects connected with it. Two names especially stood out as combining faith with works, and they came at the beginning and end of a great period of fifty years: Pugin at the beginning and the architect of Westminster Cathedral at the end. Both of these men showed in a conspicuous way how a man's art may be wrapped up in his faith. It could be accounted almost part of his fame that Bentley was so little known. Even when his great work was done he was almost as lost to notoriety as the great builders of the Middle Ages. In conclusion, he would remind them that the Institute were in a sense guests themselves, for they owed it to the gracious permission of the Fishmongers' Company that they were allowed to dine in that hall. He would therefore like to express the appreciation of the Institute of the kindness of the Company.

The Rt. Hon. the Lord Mayor, in responding for "The Guests," said he thanked Mr. Waterhouse for what he had said, although they had all been reminded of some of their weaknesses. They had been told that when a man gets too old for any other occupation he is allowed to make after-dinner speeches. Now it was his privilege to make many after-dinner speeches. Mr. Waterhouse had, however, forgotten in saying that this was the sole occupation for the aged there was another possibility for them, and that was the lethal chamber. He was sure that the guests would be very much honoured at the opportunity afforded of standing shoulder to shoulder with the great professional men who belong to this Institute. Allusion had been made to a profit of 100 per cent. from guests. He, as a representative, employed many architects, but he hoped that they would be so certain of giving full value for any miserable pittance they might receive it would be recorded of them that they worked for the love of their art and not in the expectation of any sordid gain. In conclusion, he would express the sincere gratitude of the guests for the great privilege afforded the mere man in the street of being permitted to come into the citadel of architectural learning and for a few hours at any rate to be permitted to sit at the feet of architects and to learn of their art.

His Grace the Lord Archbishop of Westminster said he was greatly honoured to be associated in the toast with the Lord Mayor. The latter had replied mainly on the part of those who approach architecture from the civic standpoint. When he himself came into contact with the architectural world it was necessarily from the ecclesiastical side. On that account the Institute had given proof of very great magnanimity in inviting him to be their guest. The greater part of his work consisted in trying to set up ecclesiastical buildings of the simplest possible character at the least possible expense. He had found that generally his first interview with one or other of the many architects with whom he could claim friendship was the most pleasurable one for both sides. He entertained great hopes, and the architect did likewise, of what they were going to accomplish. But later on the architect had to reconcile his art with a very exiguous purse. But he (the speaker) could never forget that he was at Westminster living continually under the shadow of a very masterpiece of modern architectural skill. And on that account, if at times he was bound to curb artistic aspirations, architects would understand he could never be ungrateful to the members of their profession. Perhaps he might be allowed to say that, after all, it is the Christian Church which has offered to architects the highest opportunities of exercising their skill, and they have done more than anyone to add dignity and beauty to Divine worship. They would permit him, in expressing a wish for their success in every department, to hope they would never fail to find in religion their highest source of inspiration.

During the dinner a programme of instrumental music was gone through by Herr Gottlieb's Vienna Orchestra.

OUR CONTEMPORARIES FROM OVERSEAS.

THE *American Architect* (New York) has issued a special manufacturing building number, which contains a large number of views, plans, and other geometrical drawings, including constructive details of a variety of factory buildings recently erected in the United States. A complete series of views is also given of St. Paul's Cathedral, Detroit, of which Messrs. Cram, Goodhue & Ferguson are the architects.

Berliner Architekturwelt (Berlin) illustrates fully the new Real-gymnasium at Mariendorf, of which Herren Reinhardt & Süssenguth are the architects; and also that at Gross-Lichterfelde by Herr Ammer. Plans, views, and details are given of a large office building, the Fuggerhaus, in the Königin Augusta Strasse, Berlin, by Herren Leschnitzen & Lipp, and some country houses are also illustrated.

La Construction Moderne (Paris) gives some good general views and details of the Victor Emmanuel monument at Rome, with a scathing criticism by Alfredo Melani on its design as executed.

Deutsche Bauzeitung (Berlin) has in recent issues fully illustrated the great building erected to provide lecture rooms for the University of Hamburg, from the designs of Herren H. Distel & A. Grubitz.

Het Huis (Amsterdam) has a continuation of the article on the castle of Doornenburg, and also the conclusion of that on old tobacco-boxes with engraved lids. The new building of the Amsterdam Bank in the Sarphatistraat is illustrated.

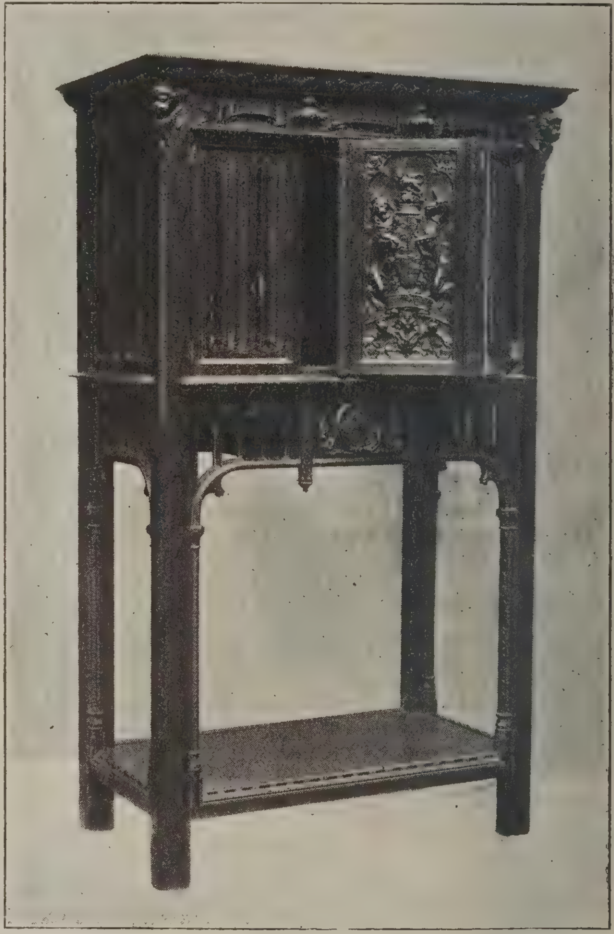
Il Monitore Tecnico (Milan) contains an illustrated description of a scheme by the engineer Daniele Donghi for connecting Venice and the Lido by a tramway tunnel under the lagoon.

Stone (New York) illustrates the entrance vestibule and main stairway of the New York Public Library and the upper central portion of the reredos at Christ Church Episcopal Cathedral, St. Louis, the latter the work of Harry Hems & Sons, of Exeter.

ILLUSTRATIONS.

DETAIL OF CARVED CABINET.

THE Armoire was designed by the headmaster and carved by the students of the school. The wood used is French walnut, and the design is carried out on the lines of the transitional Gothic of the "Francois Premier" period. The details are modern but treated somewhat severely in accordance with the style. The cabinet stands 4 feet 6 inches high and is 2 feet 9 inches wide, the upper portion forming a cupboard with a opening of 2 feet by 1 foot 4½ inches by 1 foot 7½ inches high. Beneath the centre of the cupboard is a drawer 8 inches by 5 inches by 15 inches deep. The Royal monogram is introduced in the carved panel on the front of this drawer. The door which forms the centre panel is richly carved with the Royal Arms, the Rose, the Thistle, and the Shamrock. On either side and at the sides of the cupboard are six panels ornamented with the linenfold pattern, with a very delicate line of carving down the centre of each. The three front panels are separated by small columns richly tooled and finished off with finials and pendants. The cupboard rests on three arches and bands of pierced tracery. These arches are supported by small shafts with caps and bases, they are octagonal in section and covered with delicately tooled ornament. The whole is surmounted by a cornice consisting of a convex moulding pierced and carved with roses and foliage and a frieze on which is carved an inscribed Garter. At the two angles are winged cherubs' heads carved out of the angle posts.



Carved Cabinet presented to their Majesties the King and Queen as a Coronation Gift by the School of Art Wood Carving.

The following letter has been received by the Secretary of the School of Art Wood Carving in acknowledgment of the presentation:—

Buckingham Palace:
June 17, 1911.

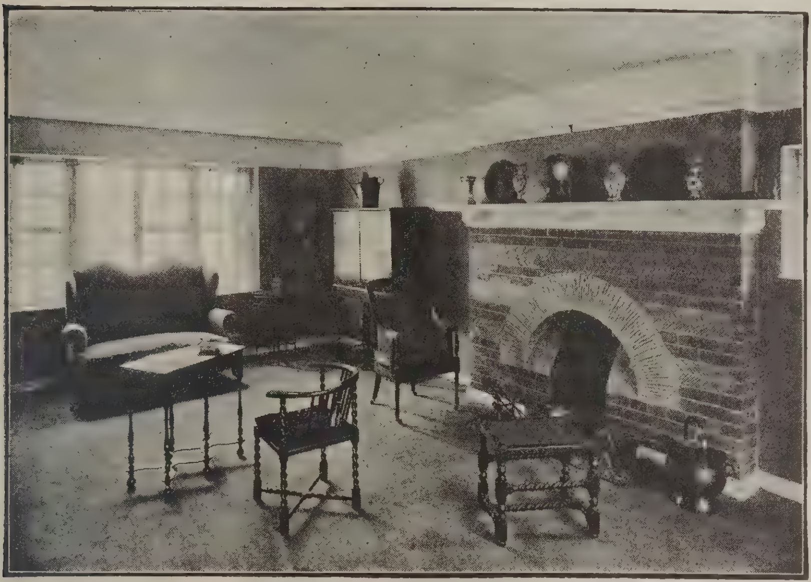
Dear Sir,—The King and Queen command me to convey the expression of their sincere thanks to all those students, past and present, who have joined in offering to their Majesties on the occasion of the Coronation the cabinet designed and carved by the staff and themselves. The King and Queen are delighted both with the design and execution of this beautiful present, and are very glad to possess the list of names of the donors, which is appended to the address that accompanied the gift.—Yours very faithfully,

ARTHUR BIGGE.

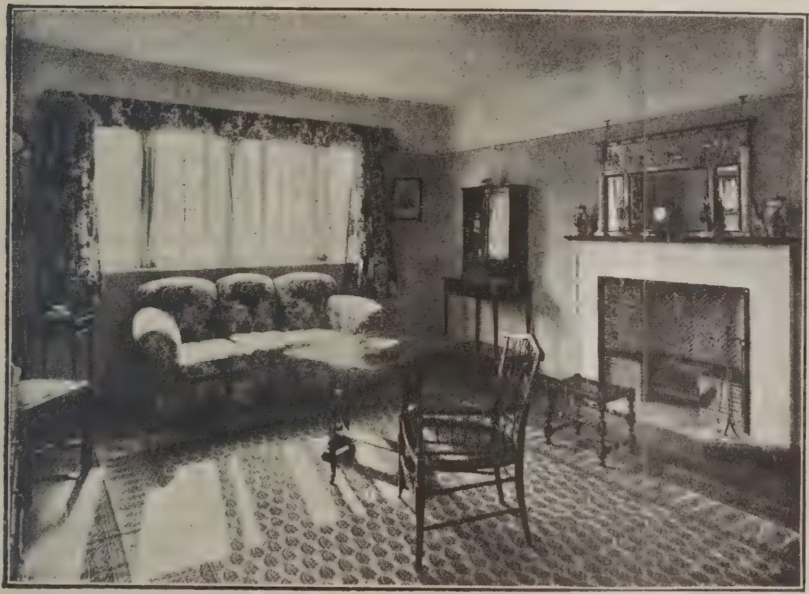
J. Saltmarsh, Esq., I.S.O.,
Secretary, School of Art Wood Carving.

MORDEN COLLEGE, BLACKHEATH.

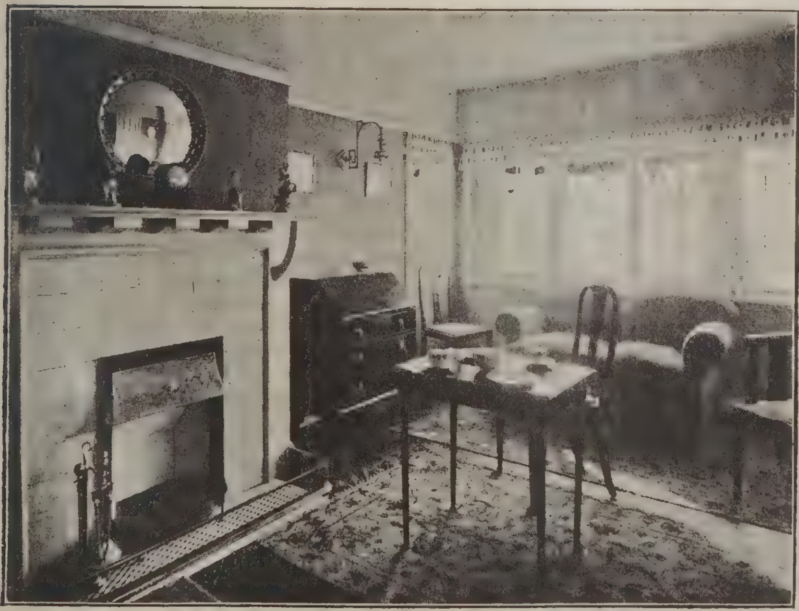
THE measured drawings of this work of Sir Christopher Wren have been prepared by Mr. W. G. Allen, and are in further illustration of the article which appears on page 3.



SITTING ROOM IN MR. MICHAEL BUNNEY'S HOUSE (Plot 16).



SITTING ROOM IN MR. T. MILLWOOD WILSON'S HOUSE (Plot 226).



SITTING ROOM IN MR. CHARD'S HOUSE (Plot 304).

FURNITURE AT GIDEA PARK.

THE promoters of the exhibition of houses and cottages at the Romford Garden Suburb were well advised in arranging a special award for internal fittings. There were in all seven classes in the competition: the first was for a detached house to cost £500; the second, for a detached cottage, to cost £375; and Class III. was for the best internally fitted cottage in either of the preceding classes. Most of the prizes have been already allotted, but the winner in Class III. has yet to be selected. Now, however, several of the houses are furnished by enterprising firms, and the visitor will find in them both instruction and interest.

Those of our readers who have not been to Gidea Park had an opportunity of obtaining an idea of some of the furniture in a previous article, with illustrations, dealing with the interiors of a few of the houses.* This week we show more photographs, and these are of rooms furnished by Oetzmann & Co., Ltd., Hampstead Road, W. Their exhibition is to be found in four houses, two of which are facing the golf links and the remaining two are in an adjacent part of the estate. To the visitor approaching the suburb from the station the first house to be entered is on plot No. 14 (Mr. T. Milwood Wilson, architect). It admirably exemplifies what can be done in the way of furnishing a sitting-room, a dining-room, and four bedrooms for about £250, with due regard for good taste and comfort. To some the chintzes in the sitting-room might seem not quite satisfactory, but that is obviously a matter for individual choice. In this house, as in the other three, commendable care has been taken to preserve the colour harmonies between the walls, the carpets, the hangings, and the coverings. Close to plot No. 14 is Mr. Michael Bunney's house on plot 16, of which we show the sitting-room. This is the most expensively furnished of the four, and totals about £300. There can be no possible doubt that it contains many pieces which would please the most exacting critic. The sitting-room is furnished, Messrs. Oetzmann say, partly in walnut and partly in oak of the Charles II. and William and Mary styles. This room goes from front to back of the house, and gives all the necessary space for a dignified arrangement of its contents. In certain of the other houses in the suburb the rooms are so small as to give a crowded effect when the furniture is brought in. Our second illustration is of the sitting-room of a house designed by Mr. T. Millwood Wilson for plot No. 226 (opposite the village green). It will be noticed that here there is a laudable restraint, which is continued throughout the house. The fourth and last house is in Risebridge Road, on plot No. 304 (Mr. Chard architect). This is particularly interesting by reason of its low cost. But the dining-room here shown will indicate that it is quite possible to retain dignity and taste in furniture even though the cost be under three figures. The sitting-room also illustrated possesses the same qualities.

It should be mentioned that in each case the furniture has been installed only after consultation with the architects. The exhibit is, of course, a business one, and so one may cordially approve of the clearly marked prices which are attached to most, if not all, of the contents of these four houses.

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* See *The Architect*, June 16.

DINING ROOM IN MR. CHARD'S HOUSE (Plot 304).

THE SAFETY AND CONSTRUCTION OF BUILDINGS AT EARL'S COURT.

By BANISTER F. FLETCHER, F.R.I.B.A., F.S.I.

THE Exhibition at Earl's Court has for so long been an attraction to Londoners and visitors from the provinces and all parts of the world that there might seem to be little to say on the subject from an architectural point of view, but a visit to Earl's Court will convince anyone that considerable alterations and improvements have been carried out to make it more attractive to the public, and when it is remembered that about 3,000 men have been employed in effecting these changes for some time it will be readily understood that a good many novelties in the architecture have been executed.

The Earl's Court Exhibition, as reorganised and reconstructed by Mr. J. Calvin Brown, inevitably recalls those great international exhibitions which were held in Paris in 1889, in Chicago in 1893, and in St. Louis in 1904, for although not so large in area, it possesses many features which are due to American invention, and it further has the advantage of compactness, and in this respect the various attractions are, of course, more easily accessible to visitors. The various entrances have been provided with imposing open archways, which at once emphasise new management and reorganisation.

As an example of town planning, the arrangement of the buildings on the awkward site is indeed of great interest, and reflects great credit on Mr. A. O. Collard, F.R.I.B.A., who originally designed them, and who has been associated with a well-known American engineer (Mr. J. C. Biggs, of St. Louis) in their remodelling.

The Exhibition is, as it were, in fact, on three islands, separated not by water, but by railroads, and these are brought together with considerable ingenuity by wide bridges, some of which have been recently reconstructed so as to form one self-contained whole.

The irregularity of the site, indeed, gives to Earl's Court a considerable advantage over other Exhibitions, as it enables numerous entrances and exits to be formed on all sides, giving access to various lines of railways and omnibuses, and thus provides for the safety and convenience of the public by enabling it to easily gain the route required without crushing, crowding, and inconvenience. When one sees what takes place at the closing hour of some Exhibitions, the advantage of numerous exits cannot be too much insisted upon, for the exit to the buildings themselves is in reality a minor matter unless crushes are avoided at the turnstiles.

The risks of fire, too, appear to have been carefully studied, and the buildings have been treated with fire-resisting paint, which is approved by the London County Council, and the fire appliances have had to pass the severe tests imposed by Lieut. Sladen, of the London Fire Brigade. Where thin enclosures have been necessary, asbestos sheeting is used in preference to thin boarding, and in many cases steel takes the place of the wood studding which was formerly used in Exhibition buildings.

The Empress Hall, which is 315 feet long, and has a clear span of 220 feet (only 5 feet less than St. Pancras Station, which is the widest space in England roofed in a single span), is now used as a skating rink, and has been re-decorated inside and out, and remains one of the finest buildings in the Exhibition.

The Central Hall, which forms the centre of the Exhibition, being situated at the eastern end of the bridge over the West London Railway, has been re-arranged and made more convenient as a meeting-place and starting-point to various parts of the Exhibition.

Northwards of the Central Hall lies the Imperial Court in the Hindoo style of architecture, which is considerably altered from its former appearance, for the eastern side has been removed, and is occupied by the "Gravity" or "Coaster" ride. This is a structure of timber providing a railed track of 1,200 yards, along which the cars, provided with carefully-designed safety apparatus, run on graded curves after being started from a tower 50 feet above the ground. This structure, with its forest of pitch-pine timbers, is, we believe, the first of its kind in Europe, and possesses many improvements, which should make it popular, amongst which may be mentioned the "Jerk Saving" apparatus or clutch, the improved cars each seating four persons, the complete automatic signalling apparatus, improved wheels, and guide wheels and extra precautions in laying the track including the safety clutches every 3 feet apart.

Further northwards, the "Dragon Gorge," formed of tracks in a similar manner, is made to pass through scenery of various types for a distance of over a mile, the safety cars having a seating capacity for six people. The entrance is an amazing structure of steel and plaster. Near by is the West Kensington Station entrance, one of the four great exits which distribute the public at closing time, and thus minimises any inconvenient crushing.

Crossing the District Railway line by the newly-widened bridge, the forest of timbers forming the new "Tower Ride" is a conspicuous feature. This structure, raised well above the ground, is of stout timbers, the uprights being bolted together and supporting the horizontal timbers to which they are securely spiked with 6-inch spikes. In this, as in the other structures of the same type previously mentioned, the London County Council regulations require that the safety of the public should be adequately provided for, and, indeed, it must be the prime consideration for all amusement devices, for whereas railways and other public means of communication have perforce to be used by the public to get from place to place, people are not compelled to use "Gravitation Rides" and "Mountain Railways," and should not do so unless assured that every precaution is taken for their safety.

Returning by the Western Arcade to the Imperial Court, the Royal Galleries of which are now given up to the interesting Art Exhibition, we come to the bridge which crosses the West London Extension Railway and leads to the Queen's Hall. This has been rebuilt by the District Railway at an expense of £8,000. We find that in order to prevent crushing at this important point it has been widened considerably, and is formed of steel and concrete with asphalte floor, and is provided with a double "Escalator" or moving inclined stairway for those who like to glide up and down instead of using the adjacent staircases.

There are other novel structures, such as the "circular swing," "dragon slide," "waltzing swing," "mystic caves," "bridge of sighs," and many others, which offer new sensations without any danger to the most jaded visitor.

From a close inspection of the various buildings, I am of opinion that Mr. Calvin Brown, aided by his officials and experts, has done everything in his power to provide for the safety, comfort, and convenience of his clientèle, and that the various novel attractions already mentioned and the exhibition of very valuable ancient art, collected with much trouble from all quarters of the globe, should make the Earl's Court Exhibition a place for relaxation and interest during the coming months.

ART AND ITS INFLUENCE UPON DAILY LIFE.

By P. Walton Harrison, M.S.A., P.A.S.I.

Amidst the more evident allurements of modern life the many ways in which the arts serve for pleasure and profit, how they embellish the house and bring joy to the home, how they refine daily life and add grace and finish to individual character, are sometimes overlooked.

This subject may be dealt with under two heads; the one outward, the other inward. The one dealing with houses and tenements, with furniture, decoration, pictures, dress, and other visible and tangible objects of beauty. This is the concrete, the actual branch of the subject; while the converse side concerns conditions of mind, desires of imagination, taste, and the sense of the beautiful. This is the abstract, the mental, and what may be called the æsthetic phase.

To picture one side exclusively would be to present only one-half of the subject; whilst to combine the two into a whole brings into view the arts as they exist in the world bodily and as they affect man mentally. The inborn love of beauty begets art, and then again art, when brought into daily life feeds the finer faculties of the mind. Art is a pervading atmosphere which colours common things, giving, as Lord Bacon says of poesy, "Some shadow of satisfaction to the mind of man in those points wherein the nature of things doth deny it, the world being in proportion inferior to the soul."

The end to strive for is, to raise life to the level of art, not to sink art to the level of the common world.

A man's home is something more than a protection against the elements; in fact his house in relation to his life may be compared in some sort to the connection between body and soul. The analogies are many; indeed the windows of a dwelling have been sometimes likened to the outlooking senses, the eyes being as the windows of the mind. And next in importance to the health and comeliness of the fleshy tabernacles we inhabit, are the houses we make our homes—their light, air, and beauty; the colours, forms and ornaments that growing into daily life percolate the thoughts and flow into the current of the domestic affections. One reason why a man is seldom quite comfortable in lodgings is that the surroundings are foreign to himself; hence the endeavour to make his house in some good degree an integral part of his life.

It has been aptly said that "a house is in a certain sense an outer garment, which should bear the impress of the owner's peculiarities"; and it may be further observed that as a single dwelling represents an individual, so does a collective style of construction and decoration correspond to a race, a nation, or a period. A historic style, whether it be exemplified by a temple, church, palace, or ordinary private house, is an accumulative growth. In domestic architecture the first germ may be said to be a chamber or room, a shelter from the elements, which as barbarism passes into civilisation gradually grows; and so in the course of time have been matured the Greek and Roman houses, the Italian villa, the French château, the German schloss, the English castle and manor house. Each type in turn was moulded on the actual life, and having served its end, was succeeded by a new form accommodated to changed circumstances. Moreover, these historic styles and architectural structures have risen in the presence of nature—that nature which in its beauty colours the mind of man; they reflect conditions of climate, they make provision for summer's heat and winter's cold, they respond to the daily wants of great families of mankind, they embody an idea and satisfy a desire. And thus these forms and decorations become more living than inanimate stone; they are vital as organic tissues, they share a growth with nature and a grace with the human figure and flowing draperies.

It is important here to endeavour to indicate how the manifold phases of art, which in these latter days have grown complex and perplexing, had at first a simple origin in the forms of nature and in the wants of man; how they stand as tangible effects of more or less ascertainable causes, and accordingly are appreciable to reason and common-sense. This line of thought invites to further study.

Domestic architecture in England sprang out of a social state of the people. The arrangements were once feudal and servile, but at length the local arts, like the national laws, wrested as it were a Magna Charta of liberty. In mediæval times the distinctive feature was the dining-hall, but after the 15th century expanded into importance dormitories and other chambers, including the ladies' "withdrawing room." These structural changes were made to meet the advance in the social and moral condition of the English nation, the object being to minister to the convenience, comfort, and privacy of domestic life. "Side by side with the gradual development of the civilisation, wealth, and power of England, grew the domestic habitations of the country, in each age reflecting not only the manners and customs of the people, but the position and prosperity of the English as a nation; each progressive step in the gradual development of the style and plan being but an illustration to a page of history."

Whether Great Britain possesses any one style that can be called expressly national is doubtful, and yet beyond question our structural and decorative arts have grown out of and respond to our national life. Our laws are said to be the perfection of reason, and our arts, though not very ideal, are little short of perfect in their adaptation to practical ends, and are the heritage of our people. Of the Englishman's house, the boast has been made that though the winds of heaven may blow through it, the king cannot enter. Against our political constitution the fault has been found that it holds so loosely together that a carriage and four can be driven between its clauses, and yet it works well. And so with the domestic economy of our art; it may be wanting in symmetry and consistency, and yet it keeps out weather and ensures comfort.

Architecture is the parent art whence all the auxiliary arts spring. The reason of this is obvious, not only because a structure must be raised before it can be decorated, but also because the conditions of man and the surroundings of nature which mould the architecture act with equivalent forces on all subsidiary creations. Hence sculpture and painting, born as twin brothers, acknowledge architecture as a parent entitled to govern and to guide.

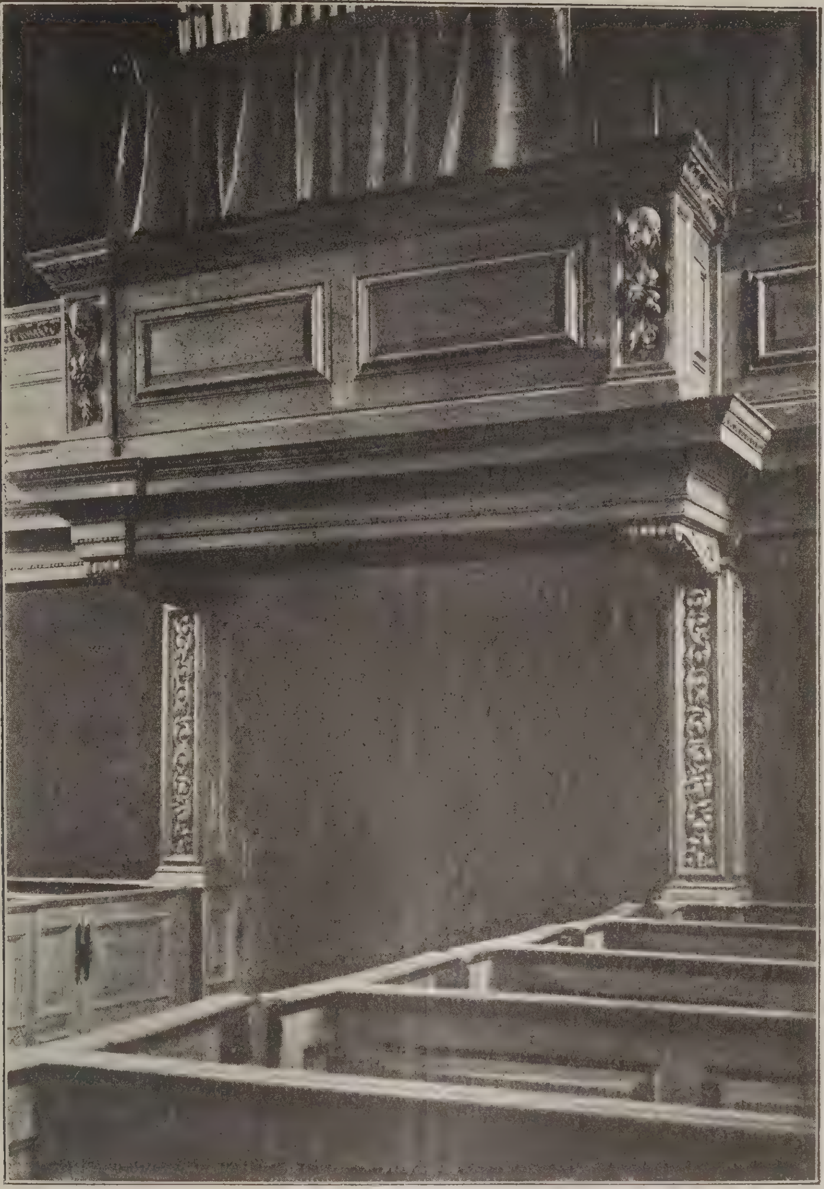
Kindred, if not identical, principles of construction, composition, and ornament prescribe the style of a building, of a statue and wall decoration; like laws regulate the form of a stone facade, of a wood cabinet, of a wall-painting, and a woollen carpet. I do not wish to under-rate the difficulty an unprofessional person may find in mastering these principles with their practical applications. But it may be well to recognise that without some knowledge a householder's judgment must be almost worthless; that wanting the first rudiments he will fall a victim to blind caprice and unreasoning fashion. Such misadventures, which have brought upon the arts in all their aspects incalculable evils, may, I think, in great part be averted even by the most elementary tuition. Art education, fortunately, becomes day by day more widely extended; and casting aside what is false and meaningless, people are taught to revert to a simplicity akin to nature and appreciable to clear reason and common-sense. Nor is it hard to gain a sound groundwork by aid of the plain and practical books which treat of the orders of architecture and the principles of design and decoration; and such teachings may receive pleasant illustration by visits to public museums and schools wherein national styles and chronological developments are exemplified by leading historic examples.

What is the style, Italian, Gothic, or otherwise, which an Englishman may best select for his dwelling? In the majority of cases this is decided for him, and not by him. In a city, at all events, the chances are that he will have to content himself with "the common square house" which he must make the best of. But, of course, the ideal condition

MORDEN COLLEGE.—THE CHAPEL.

is that a man possessed of some modest independence shall begin at the beginning, and first construct the house which he will afterwards proceed to decorate and furnish. Thus in due course the inside grows in harmony with the outside, all is of one type and pattern, and will turn out a consistent and complete work of art. This I have known done successfully—of course under professional advice, for I need scarcely say that the man who acts as his own architect has a fool for his client. Happily it is not difficult in the present day to find a well-trained and trustworthy adviser. Now, as in the best epochs, the divisions are broken down between high and low, great and small; the artist is not above industries, while the artisan is raised by legitimate aspirations. Art, as Thomas Carlyle says of poetry, "is the attempt which man makes to render his life harmonious." Very welcome is the close fellowship that has sprung up among skilled labourers. We may possess no "Gardens of the Medici," but we have at least the Schools of South Kensington. And throughout the country in the same Government institutions are seen studying together the architect, the sculptor, the painter, and the art workman. And it is no slight gain that among the pupils may be counted the sons of capitalists and of private gentlemen. Nothing, it is well known, tended more in the immediate past to the degradation of the arts than the ignorance and false taste of the middle and the higher classes; but now when art culture, at least in its rudiments, is possessed by all conditions in life, professional men may, with advantage, take counsel with patrons and connoisseurs. Such relations between employers and employed have in the best times led to salutary results. The hope would not seem unreasonable that the architect and decorator may be incited to rarer beauty and subtler utility by the well-to-do, well-read, and widely-travelled Englishman, who not unreasonably requires that his house in its plan and appointments shall minister to his highly-wrought sensibilities. It is through such reciprocities that the domestic arts have ever blended with the habit and complexion of the times, and it is yet possible that new and improved adaptations may follow, when the artist shall find equivalent expression for the better thought of man and the higher phases of life.

Never were the facilities greater for bringing domestic surroundings into keeping with the mind's imaginings. The sage advice has indeed been given to "leave the goodly fabrics of houses meant for beauty only to the enchanted palaces of the poets who build them with small cost." But fortunately "the thing of beauty" is not costly in proportion to the joy it brings, and while the necessaries of life have grown year by year dearer, elegancies, and even luxuries, have come within the reach of moderate means. It may be observed that there are typical characters which appear to fit typical houses; on the other hand, incongruities sometimes arise between tenants and tenements. It may readily be conjectured that there exist certain angular, serrated individuals to whom gable ends, barge-boards, and cork-screw chimneys prove most congenial; while there are others of symmetric proportion, balanced thought, and finished manner, who might feel most at home with a geometric and ideal villa as designed by Palladio and Sansovino. What is greatly to be desired is, that art shall express character of some sort, for in these days, especially in city life, the bane has been that houses, like their inhabitants, are characterless. Artists, however, of late years, both at home and abroad, have set a good example; they have raised habitations which are as picturesque as their own manners are un-



MORDEN COLLEGE.—THE ORGAN GALLERY IN THE CHAPEL.

conventional. Studios are naturally built and adorned in response to the arts they shelter—quiet retreats secluded from the busy world in gardens among shadowy trees, or shut off from noisy city life by tapestries, and otherwise far removed from senseless fashion by old treasures, painted glass, cabinets, carvings, costumes, and embroiderings which transport the fancy to periods historic and picturesque. A studio fitly reflects the style of an artist's composition; a library, in like manner, echoes an author's thoughts, and each will generally be found to yield material for a picture. Indeed, scarcely any better test can be made of the skilfulness, or otherwise, of any structure or decoration than by asking the simple question, "Will it compose well; will it add beauty to the landscape; will the whole arrangement make a pleasing picture?" Many such paintings live within the memory. Take as example Lord Lytton and Charles Dickens, each seated among books in his library; or again, the studios of great artists surrounded by the works their genius has called into being.

Each man, though but a small unit in a large world, impresses his mind indelibly on his home, and something more than idle curiosity leads a traveller to search out the haunts and habitations of Coleridge, Wordsworth, and Shakespeare. Matter impressed by mind becomes art.

The reverence for antiquity, the love for what is old, has made our century a period of revivals. And there is a reason under the law of reaction why men suffering from the pressure, the turmoil, the perpetual motion of modern civilisation, should seek refuge in the tranquil and poetic past. Young men rush to the city, while older men have retired to the country, only too happy if amid the beauties of nature could be found repose in

. . . . "an English home—where twilight pour'd
On dewy pastures, dewy trees,
Softer than sleep—all things in order stored
A haunt of ancient peace."

The country seats of old England gave place to Palladian villas, not of native growth, but exotics transplanted from abroad. Then ended for a time, at any rate, the national type, and houses were raised for pride and ostentation. The successive architectural styles, often named from the reigning sovereign, which took root in British soil, were, it must be confessed, far from legitimate in descent; the Elizabethan was followed by the Jacobean, and in due course came Queen Anne and the Georgian. Nothing can be more melancholy than the degradation and corruption into which the arts had fallen, when at last the notion happily seems to have occurred that it might be well to revive the old styles in their purity. Hence the resuscitation of the Gothic, not only for ecclesiastical but for secular uses; a revival which, notwithstanding some extravagances and follies, brings to our English homes manifold forms of fantasy and beauty. Since have followed other phases, and one of the latest and most favoured of ideas is that the Queen Anne style, though somewhat mongrel, bids best for the art of the future. These several revivals have the advantage of being sustained by research. And so critical has been the study of historic masterpieces that the care-taking revivals of Classic, Gothic, or Renaissance types reproduce the style, purged from late corruptions, in the chastity of the best period. Thus there is good ground to hope that shams have had their day; indeed, there cannot be a doubt but that the domestic arts have gained greatly in purity, simplicity and truth. The time has now come when art permeates all conditions of society, ministering to the luxuries of the rich as well as to the necessities of the poor. The aim should be in all our works to approach the completeness and fitness which mark the more perfect ways of creation, making our homes, the furniture of our houses, the clothes of our bodies part of that large economy in which uses intermingle with beauties.

THE TESTING OF PAINT AND VARNISH.

THE following is the conclusion of Mr. W. F. Nicholson's paper read before the Paint and Varnish Society on June 15, and is continued from our two previous issues:—

Cracking.—That is, very fine cracks, extending in all directions. This is often due to the varnish being applied in very cold weather, or in weather with cold snaps. Another frequent cause of this is the addition of too much gold size or terebine. A painter will often add terebine to his varnish to enable him to get off the job quicker, and especially in bad weather, when he has to do the work during the fine spells. The powerful dryer causes the varnish to set too hard and destroys the elasticity, so that the varnish cannot expand and contract with the varying weather it has to encounter. Cracking is often due to the inferior preparation of the work over which the varnish is used, especially in beer graining and groundwork that contains too much oil, or in which terebine has been used. When too much oil has been used in the undercoat, it prevents the work hardening sufficiently so that when the varnish is applied and dries it draws the paint up, thus causing cracks. When too much terebine is used it has just the opposite effect, *viz.*, it causes the undercoat to dry too hard, so that when the elastic varnish expands with the heat of the sun the paint will not correspondingly expand, thus causing cracks.

A practical man can usually tell whether the fault lies with the varnish or the paint underneath. If the fault of the varnish, the work underneath is usually undamaged, but if, on the other hand, the fault lies with the undercoat, the cracks extend right to the woodwork underneath. Again, in graining work, if the cracks extend in all directions, it is usually the varnish that is at fault, but if the cracks follow the graining, then the fault is with the undercoat.

Blooming.—This is one of the most serious difficulties that manufacturers and users of varnishes have to contend with. However well made and however good the quality of a varnish, there is still the likelihood of blooming. Blooming is a peculiar white, cloudy, and lustreless appearance which shows itself either in patches or over the whole surface coated with the varnish. The fault may be with the varnish itself, or may be caused through conditions arising at the time of application. If this fault be due to the varnish itself, it is caused usually through insufficient running of the gum, so that all the moisture is not expelled, and it also sometimes happens through using of varnish that is in too new a condition. If caused through conditions arising when the varnish is being used, it is usually that there has been a draught which has caught the varnish, or that the work over which the varnish is being used is damp. This bloom, as a rule, can easily be wiped off with a soft cloth, but will usually re-occur. The most satisfactory manner to deal with blooming is, in my opinion, to wash the work over with a solution of vinegar and water, about half a pint of vinegar to a pail of water. Then, if the work is rubbed up again with a washleather, it is generally found that the bloom has disappeared entirely.

It sometimes happens that a painter will leave his varnishes exposed to the air for some time, by leaving the bung out of the can. He then finds that the varnish has thickened too much to use. He will often then add some turpentine to thin it down again, and is very surprised when he has used the varnish to find that it dries patchy—that is, the varnish dries in patches, some dead and others glossy, and as often as not blames the varnish. It should be well known that turpentine will not properly amalgamate with varnish cold, even if they can be well shaken up; on being left, it will be found that some of the turps has risen to the top. To thin the varnish properly it requires to be heated, and even then it is not safe to use the varnish so treated on good work. The same will apply when terebine or other liquid dryers is added to varnish, and if a painter does do this, he should do so at his own risk, and not blame the manufacturer if the work does not turn out satisfactory.

Sometimes varnish will be found to crawl into blotches—that is, it looks like small-pox marks. This is due to one of two causes. First, that it is applied over a dirty, greasy surface, or, secondly, that it is applied on a surface that has already been varnished and has not been rubbed down. Varnish will not take well over a glazed surface.

Varnishes made from cheap, low-grade gums and resin are rather liable to perish. The same thing happens by the use of too much driers in making the varnish. Exposure to gases, especially vapour of ammonia, or to heat before the varnish is dry, is liable to induce the varnish to perish.

Whenever any such faults occur in varnish work the varnisher should make particular inquiry into all the conditions surrounding the work before proceeding to form an opinion as to the exact cause, and at once throwing the blame on the varnish. First, he should have regard to climatic conditions; then, to the place and circumstances surrounding the work, whether subject to draughts, too much heat, vapour, &c.; to the condition of the work itself; and the care with which the varnish has been applied.

Many decorators have the opinion that anyone can use and apply varnish, and often put a casual painter or labourer on to do the work. This is a great mistake. To varnish work well it requires a skilled workman, and should not be undertaken by anyone who has not had plenty of practice.

In using varnish, several points should be carefully seen to. First and foremost, to see that the work is thoroughly clean and dry, also free from grease, pumice dust and dirt. Secondly, to see that the brush is quite clean and dry. Do not use a brush that has been kept in paraffin, as paraffin is greasy and will spoil the work. Thirdly, to see that the atmospheric influences are the best possible. Fourthly, to see that the varnish is not too thick, as this is as bad as using it too thin; both will cause it to run, the former will appear to hang in festoons. And lastly, to see that the varnish to be used is the right sort for the work. For outside work an elastic varnish should always be used.

Now as to the best tests for varnish. The best and most reliable test for a varnish, and one which I would recommend all consumers of varnish to use before taking the bulk into use, is:—Paint a board with a good coach colour, allow it to get properly hard, then apply the varnish to be tested, taking care that a clean brush is used. Then hang the board in an exposed position, and watch the results.

This method takes time, which cannot always be spared or given to the test. If it is desired to arrive at a knowledge of the durability under wear of a varnish sooner than it would take under ordinary conditions, take a sheet of glass and paint it with a coat of body colour. If there are several varnishes to try, space off the surface into as many spaces as there are varnishes. Then with a clean brush for each proceed to apply by accurate measurement each varnish to the space allotted, and when dry expose it to the weather on a flat surface, on which some gravel has been placed, or on a skylight, laying it flat with the varnish side up. Weeks will determine in this case what would take months otherwise. Inside varnish can be tried by pouring some on a piece of glass and exposing it to the light in a room or workshop.

If I may, in conclusion, be allowed, as a manufacturer, to give a piece of advice to users of varnish, it is this:—Always use a good varnish. It is far cheaper in the end, besides going further; it gives satisfaction to you and your customer, thus obtaining repeat orders; whereas cheap varnishes, which look well perhaps when first put on, soon lose their lustre and more often than not crack and blister, and do not give satisfaction to you or anyone else. I have often been met with this remark when I have endeavoured to impress this upon a customer: "It is all very well, but my work is so cut in price that I cannot afford to use a good varnish." My reply is this: After all, the cost of your material is very small in proportion to the cost of labour, and what you gain on the cost of your varnish you lose in labour, because a cheap varnish as a rule takes longer to apply, it not flowing as easily as the better-class article and does not go as far, besides which, your customer is not pleased, which, after all, is the chief consideration. Anyone who studies the market must know that cheap varnishes cannot contain pure ingredients, and as a rule it can be taken for granted that when the price is reduced the quality is reduced to meet it.

I now ask you to comment upon and to criticise this paper, as it is only by hearing one another's views that a correct judgment can possibly be obtained upon the subjects I have spoken on, every manufacturer having, I suppose, a slightly different view according to how he has studied the subject.

Mr. T. A. Davidson thought the author did well in advising the practical painter to test his paints and varnishes by practical methods rather than to apply the methods of chemistry, as chemical methods required an amount of knowledge not usually to be found in the painter and decorator. While a painter and decorator might be able to achieve results fairly well, those results had to be interpreted correctly, and for that purpose very special knowledge was required. He had been interested to hear the remarks about good varnishes being made containing resin and Chinese wood oil; he believed such varnishes could be made, and under those circumstances he did not see why varnishes made from the more expensive resins should be held in higher esteem, unless they were capable of accomplishing better work than the cheaper varnishes. The question of "bloom" on varnish was perennially cropping up. He doubted very much whether anybody really knew what were the causes of "bloom." It was well known that varnish in drying during exposure to the weather, especially under conditions of moisture, exhibited the blemish, and in his experience there was more than one type of "bloom," and one of them, he thought, was due to the oxidation of oil in the varnish. Some varnishes were subject to blooming more readily than others, owing to the nature of their composition. With regard to the blooming due to natural oxidation, a good deal of it would be removed by washing, and it was on that account that carriages and coaches were so frequently washed, simply to keep the appearance of the varnished surface up to its best. He would emphasise that greater attention should be paid to the physical testing of paints and varnishes rather than to the chemical testing, for after all they had to do certain work, any if they would not do that work, no matter how pure they were, they were useless for the purpose. With regard to the reference in the paper to a chemist directing a painter's work and the antithesis, the chemist being directed by the painter, he could only say that in the latter case he should have a great deal of pity for the chemist.

Mr. J. **Cruickshank Smith** said there were many points in the paper on which he differed entirely from the author. At the outset, the author mentioned that, in his opinion, the painter's aspect of testing paints and varnishes might not be interesting to the manufacturer. He himself thought the reverse was the case. Nowadays manufacturers welcomed every addition to their knowledge, provided it came from really practical men, and he should like to have heard some practical painters express their opinion on the view the author had put forward. Manufacturers really did welcome painters' criticisms, and were open at all times to hear really practical remarks from users. It occurred to him that the term "testing of paints and varnishes" was liable to a good deal of misconception. The questions arose as to who was going to do the testing, and for what purpose the testing was to be done. If the testing was to be done by a professional analyst—and in that case it might be called an analysis—it gave quite different information from that which would be obtained from a painter practically examining things. He therefore drew a distinction between scientific analysis and what might be called the practical valuation of paints and varnishes. There were no men more competent than the practical users of such materials to give an opinion as to the practical value of the products; but to expect a painter to labour through the processes mentioned by the author was expecting an impossibility. Painters who attempted to follow the brief outlines given by the author would be exceedingly badly advised, because he was quite certain they would not get good results, and would probably be misled and a good deal of trouble would be caused to everyone concerned. With regard to the test in connection with the burning of oil from white lead, anyone who had the slightest smattering of chemical knowledge would never attempt, or recommend his employees to attempt, that burning off of the oil. He once came across a painter who had formed the opinion that he was using adulterated white lead, and he was endeavouring most laboriously and conscientiously to obtain some sort of result by burning the white lead in a ladle, and he mentioned that he always tested his lead in that way. He took a ground white lead of a certain weight, burned it over a coke fire, and weighed the residue, and if he obtained a certain amount he knew the lead was pure, and if not, that it was adulterated. Such information was useless. Technical testing should be left entirely to the professional chemist, because the painter attempting it would be sure to make a mess of it. With reference to oxide of zinc in the form of paint working very heavily, that did occur sometimes, but it was not necessarily so. Oxide of zinc could be ground in such a manner as to work quite freely. Modern manufacturers did not always use linseed oil in grinding oxide of zinc, but used other materials, which had the property of counteracting that physical effect. As to barytes, it was often a useful, but more often a very dangerous friend. He had understood the author to say rather emphatically that a great deal of white lead was adulterated; but he was inclined to dispute that, and if by adulteration was meant wilful sophistication, he certainly disputed it. If the author, however, simply meant that a good deal of composite paint was made nowadays, paint containing one or two pigments in a blend, it was quite true, because people had found that such a blend, properly amalgamated, gave better results than one pigment. He thought he had understood the author to say that in tinting red paint vermilionette was used, but if vermilionette was used for tinting red paint that paint would soon lose its colour. He wished to ask the author for some further information as to the action of electricity in promoting pinholes in paint, because it was an interesting point. He thought the Society was indebted to the author for putting forward the groundwork for a very wide discussion.

Mr. J. G. **McIntosh** said that with regard to tests made by painters, in the first place, the painter could not apply the tests, and, in the second place, a great many of them were totally unreliable. For instance, in regard to white lead, the author mentioned alcohol. That was one of the things he himself had been writing about for the last thirty years; it was impossible to separate the lead by sulphuric acid and alcohol; it had to be precipitated by sulphuretted hydrogen as sulphide. The testing of linseed oil with nitric acid was just as bad as burning it off. With regard to zinc oxide and white lead making a very good paint when mixed together, he quite endorsed the author's views on that matter; but he could not endorse what was said about barytes. The barytes was nothing more nor less than a makeweight, and the manufacturer who tried to educate the painter into the belief that barytes was anything more than a makeweight was on the wrong tack. He objected altogether to the manufacturer educating the painter. With regard to Chinese wood oil, the first thing that appeared about it in the English technical press was that it was used to a great extent on the Continent; but the Continental press mentioned that it was used to a large extent in England. If Chinese wood oil was to be used as a vehicle for the introduction of resin into paint, the less it was used the better.

Mr. A. S. **Jennings** had rather hoped the author would have given detailed information as to how a paint should go through a service test, because it seemed to him that was the only way to ascertain the value of a paint. The value was principally its protective value, and it was necessary to ascertain how the paint would last, and he thought there was no way of doing that except by actually exposing the paint to the atmosphere. A series of tests had been conducted in America on that plan. There were various mixtures of different pigments, pure white lead, a proportion of two-thirds of white lead, and one-third of zinc oxide, and so on, barytes, lithopone, and coloured paints. The mixtures were painted on a board and exposed to the air, and periodically reported upon a committee of painters. It seemed to him that if the Society could do something in that way it would be doing very valuable work. He thought it would be then found that the claims made for white lead were not altogether deserved, that it was not the beginning and end of paint. It would be necessary to carry out the work under the supervision of a chemist in order to obtain uniformity. A painter even with the greatest care was likely to forget that exactitude in such matters was very essential. It would be also essential to vary the thinners according to the material; for instance, one would not use the same paint on cement as on iron or wood. Also, different woods would require different mixtures, a hard wood needing something different from a soft wood. The National Association of Master House Painters and Decorators took the subject up two years ago, but they had only gone a little way, and he hoped they would continue to develop the subject, because he felt quite certain it would give much more valuable information than chemistry. Chemistry was exceedingly valuable to the manufacturer, but, as the author justly said, it was practically useless to the painter who wanted to know what a paint would do, not what it consisted of. He thought the author had made a little slip in connection with the adulteration of white lead. It was perfectly true there were on the market a number of leads which were termed "reduced," but the word "reduced" had nothing whatever to do with the Adulteration Acts. It was brought forward by the London Chamber of Commerce White Lead Section, whose action resulted in every dealer and manufacturer of white lead placing upon the package the word "reduced" when the white lead was not genuine or pure. Sometimes "No. 1" or "No. 2" was used instead. The trouble was that one manufacturer's

"No. 1" did not contain the amount of barytes as another manufacturer's "No. 1." Some uniformity in that respect would be a great help. He also thought the author was mistaken in thinking that zinc white was often adulterated. There were some zinc oxides on the market which contained a little lead, but as a rule zinc oxide was not adulterated. It was very unfortunate that the word "zinc white" was used as applying both to zinc oxide and to lithopone—two totally different materials.

The Chairman said the Society was greatly indebted to the author for his paper, which was full of useful information. From the point of view of those who used paints and varnishes there was much value in it. The testing of paints and varnishes on the part of the paint-users was more or less mechanical. There might be a number of people in the decorating trade who expected to get a first-class article at a fifth-rate price, but they did not get it, and the author had brought out that particular point. Those firms with a reputation to keep up were the firms to which the best decorators went because they knew they could rely upon having a good article at a moderate price. The tests made by users were more or less of a rough and ready character, chiefly mechanical, but they sufficed to show whether the standard was being kept up, and to keep a check on the manufacturer. The user generally had a standard set of colours, and compared the paints against those standard colours by means of weights and scales. The judging was not exact, but was sufficient for the purpose. If a man came and offered an article at 15*s*. a cwt. for which another firm wanted 35*s*., it was a mere question of proportion to find out if that 15*s*. article in comparison with the 35*s*. one was worth more than 3*s*. 6*d*. What the user looked for in colours chiefly was fineness of grinding. That helped to give a perfect paint and a paint easy of application, and also gave a solidity and finish to the paint work which could be obtained by no other means. The extra grinding was the cause of a good article costing money. There was no doubt also that the paint went further, and that, therefore, the best article was the cheapest. In testing for colours, the test would be directed to purity of tint and depth of staining power, and in the more or less transparent colours clearness of tint would be looked for. In connection with varnishes, the question of bloom was an ever recurrent one. He had had some most curious experiences in that matter. He would go on for a considerable time without the least trouble, and then, from the use of the same varnish, blooming would take place. From experience, spread over some twenty-five years, he had come to the conclusion that in most cases blooming was due to atmospheric influence. Where blooming took place the atmospheric influence was more or less of the same character, although the time of year was different; it was generally when a humid atmosphere had prevailed at the time of application of the varnish. The morning might be fine, but before the varnish had dried a moist afternoon might have occurred; nothing happened for a time, but a few weeks afterwards a bloom appeared. That bloom would recur over and over again when the weather was moist, but when the sun came out it often went away. He had had two or three instances of a door blooming regularly at such periods. On the other hand, there were cases which he could only assume must have been due to some defect in the manufacture of the varnish. He was agreeably surprised to hear from Mr. Cruickshank Smith a reference to white zinc. Most painters were now quite alive to the fact that it was not unlikely white lead was going to be barred; that would be no surprise, having regard to the commission sitting on white lead. Therefore, the question of substitutes was an important one. He did not think painters were conservative; they had used white lead because it was the best thing they could find. It led to very serious illnesses, and had been one of the causes for the rise in the rates of premium under the Employers' Liability Assurance Act. Painters would therefore like to drop white lead if possible, but equally good work had not hitherto been done with other pigments. He defied any manufacturer to use zinc white, as it had been manufactured up to the present, and make anything like a possible job, finishing with an enamel surface that would retain its lustre and would not crack or blemish in any way. He had been rather surprised with regard to the suitability of resin varnish. He did not care what varnishes were made from so long as they could be depended upon to give a reliable and satisfactory job. He had been always told, however, by representatives of manufacturers that there was not the least trace of resin in their varnishes, and had, therefore, been led to consider resin rather deleterious. With regard to vermilionette, he had not an ounce of it in his shop. What was known as vermilionette was the most unstable thing on the market. He rather wished the author had touched on red pigments, because he had had some extraordinary experience of them in the past, and most painters had had trouble. He should like to know some test which would show what reds were reliable, as the matter was a serious one very much to the front at the present time.

Mr. Nicholson, in reply, said the Society, as constituted, was a very difficult one to read a paper to, because of the different classes of members. There were certain things that a manufacturer could not mention. He, therefore, tried to strike a medium. Most of the tests he had given he thought would not be very troublesome to the majority of painters after a little study. He assured Mr. Davidson that a good many varnishes were now made from Chinese wood oil. He thought Mr. Cruickshank Smith had not quite caught something that he had said—namely, that manufacturers were quite aware of the necessity of employing a practical painter at their works in order to obtain practical results with their paints. With regard to the burning off of oil from white lead, it was not reliable, but it was given in a good many textbooks, and he had a case a short time ago in which he found it was still used. He was attending the Courts as a witness, and heard a chemist from the London County Council asked how he tested white lead, and his reply was that he tested with a blow-pipe. A good deal had been said against barytes. Several large public bodies in their specifications now stated that their colours should be ground with so much colour, so much barytes, and so much oil, so that it was being recognised that it was impossible to make paints without barytes. One of the largest users of such a specification was the Metropolitan Water Board. With regard to vermilionette, he did not mean to say that vermilionette was good for making red paint, but simply gave it as an illustration in the colouring of a white body. With reference to Mr. McIntosh's remarks, Mr. McIntosh was not a manufacturer, and did not look at things from a manufacturer's point of view. He thought Mr. Jennings had answered himself with regard to the drying of paint. The only method that could be properly used was the practical testing out of doors. With regard to adulteration, he had said distinctly in the paper that if by adulteration was meant the putting in of a cheaper article with intent to deceive the purchaser that was adulteration, but if it was simply reducing the quality it could not be called adulteration. It was a common thing for manufacturers to sell first, second, and third quality white lead, not with the intent to deceive, because if a man bought No. 1 white lead he knew he was not getting it pure. He agreed with Mr. Davidson that there were a number of cases of blooming which could not be explained at all.

On the proposition of the Chairman, a hearty vote of thanks was accorded to the lecturer for his excellent lecture.

Correspondence

Old-Time "Travellers' Rests."

Sir,—Some recent correspondence in your columns has drawn attention to "Travellers' Rests" to be found here and there in England. In London there exists a very interesting "rest" which countless hundreds of the floating population doubtless pass without bestowing a glance upon it.

And yet it is situated in such a thoroughfare as Piccadilly and at a position near the railings of the Green Park, not so near the corner as to prevent attracting attention by reason of personal anxiety as to effecting a safe crossing, and yet far enough removed from the shops, so that the more crowded nature of that portion of the thoroughfare offers no excuse for the neglect of attention paid to this "Rest."

No! doubtless the explanation is that it is not a work of art, a thing of beauty—it is purely utilitarian, and even its utility is more of the past than the present. For it is a "Porter's Rest"—a wooden slab some ten feet in length, supported on cast-iron pillars of mid-Victorian want of style, the height of the Rest being perhaps slightly over four feet. It bears a bronze inscription in bold lettering to this effect: "On the suggestion of R. A. Slaney, Esq., who for twenty-six years represented Shrewsbury in Parliament, this porter's rest was erected in 1861 by the Vestry of St. George's, Hanover Square, for the benefit of porters and others carrying burdens. As a relic of a past period in London's history it is hoped that the people will aid in its preservation."—Faithfully yours,

Percy L. Marks.

Imperial Buildings, Ludgate Circus: June 4.

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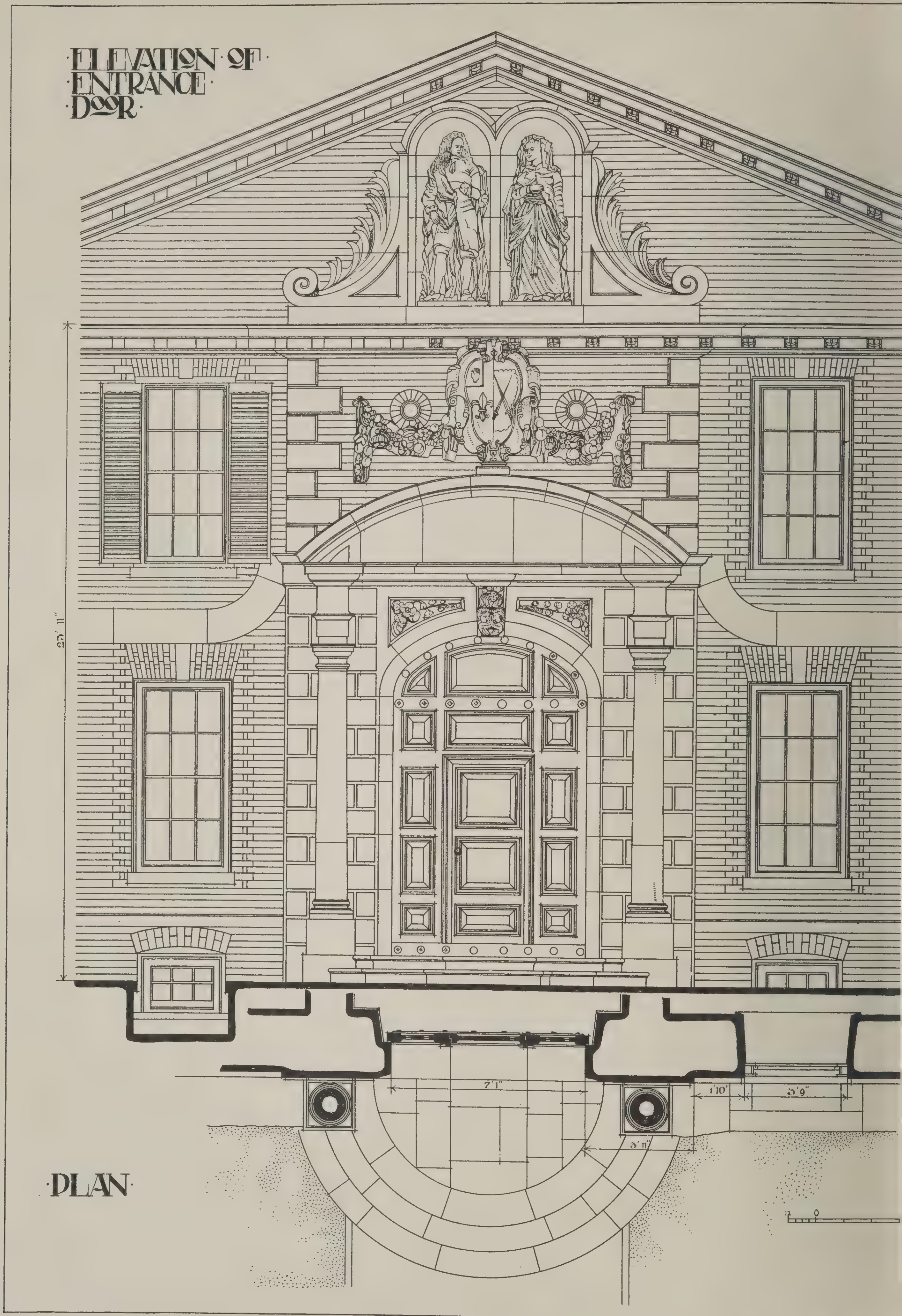

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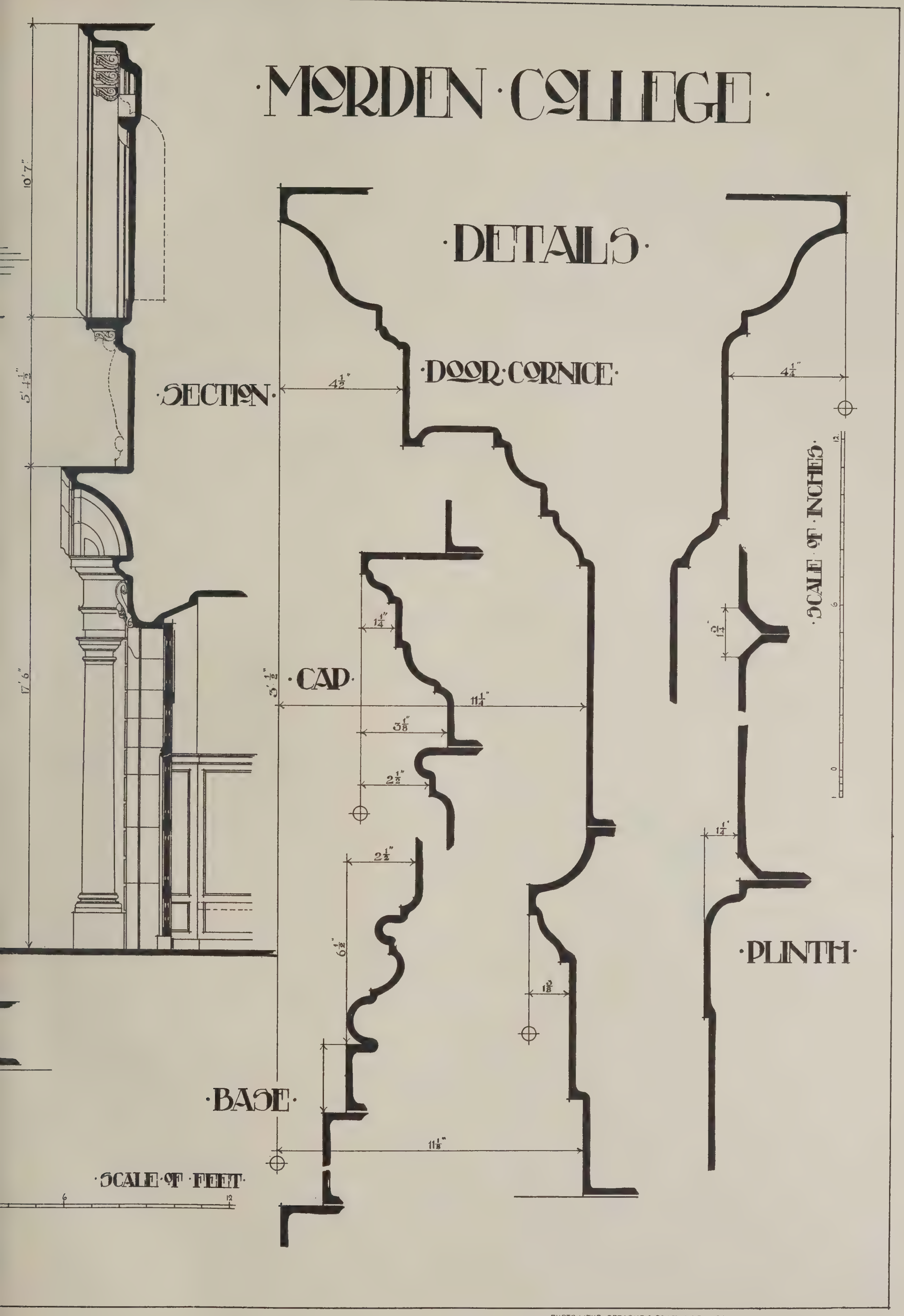

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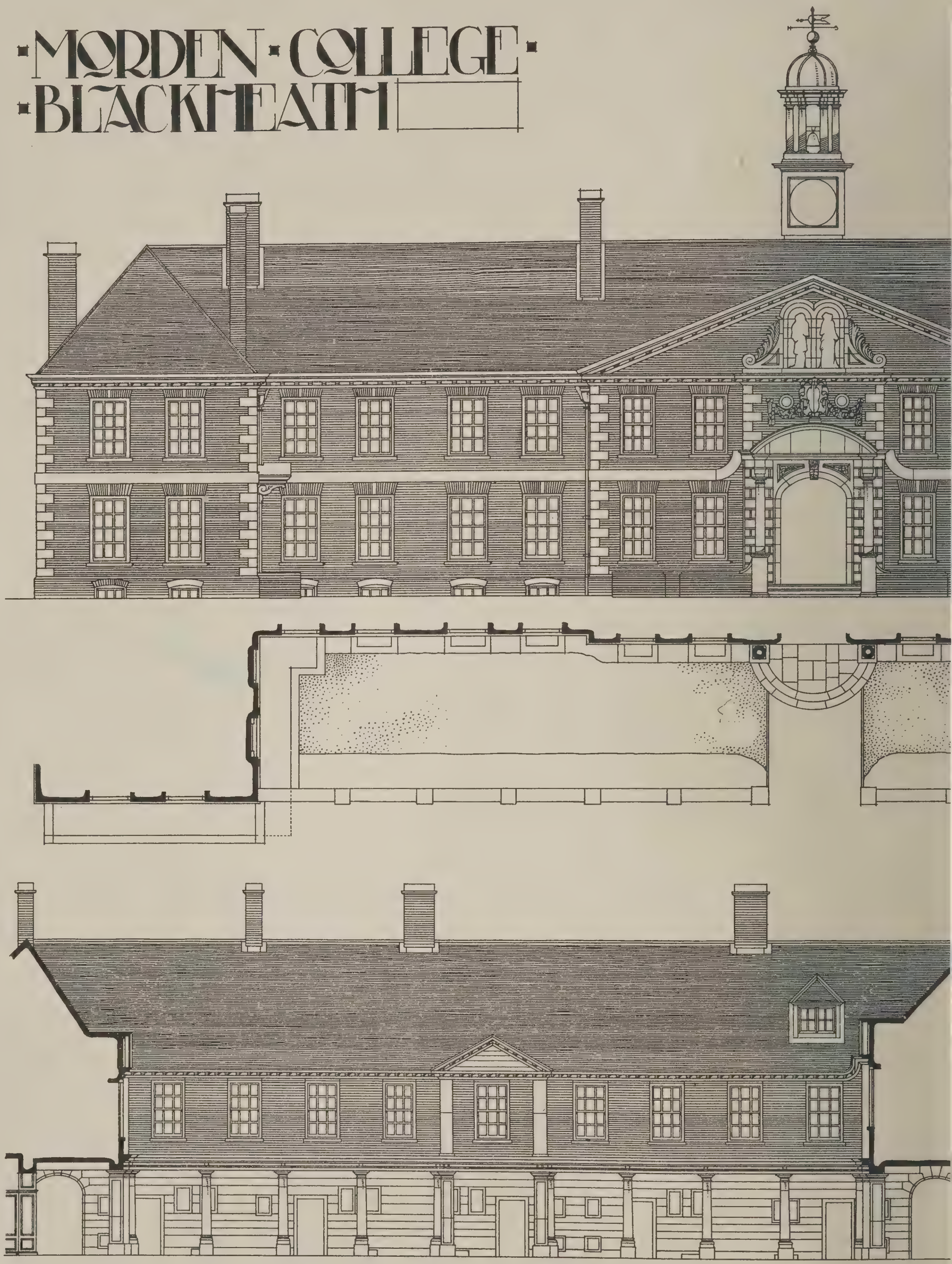

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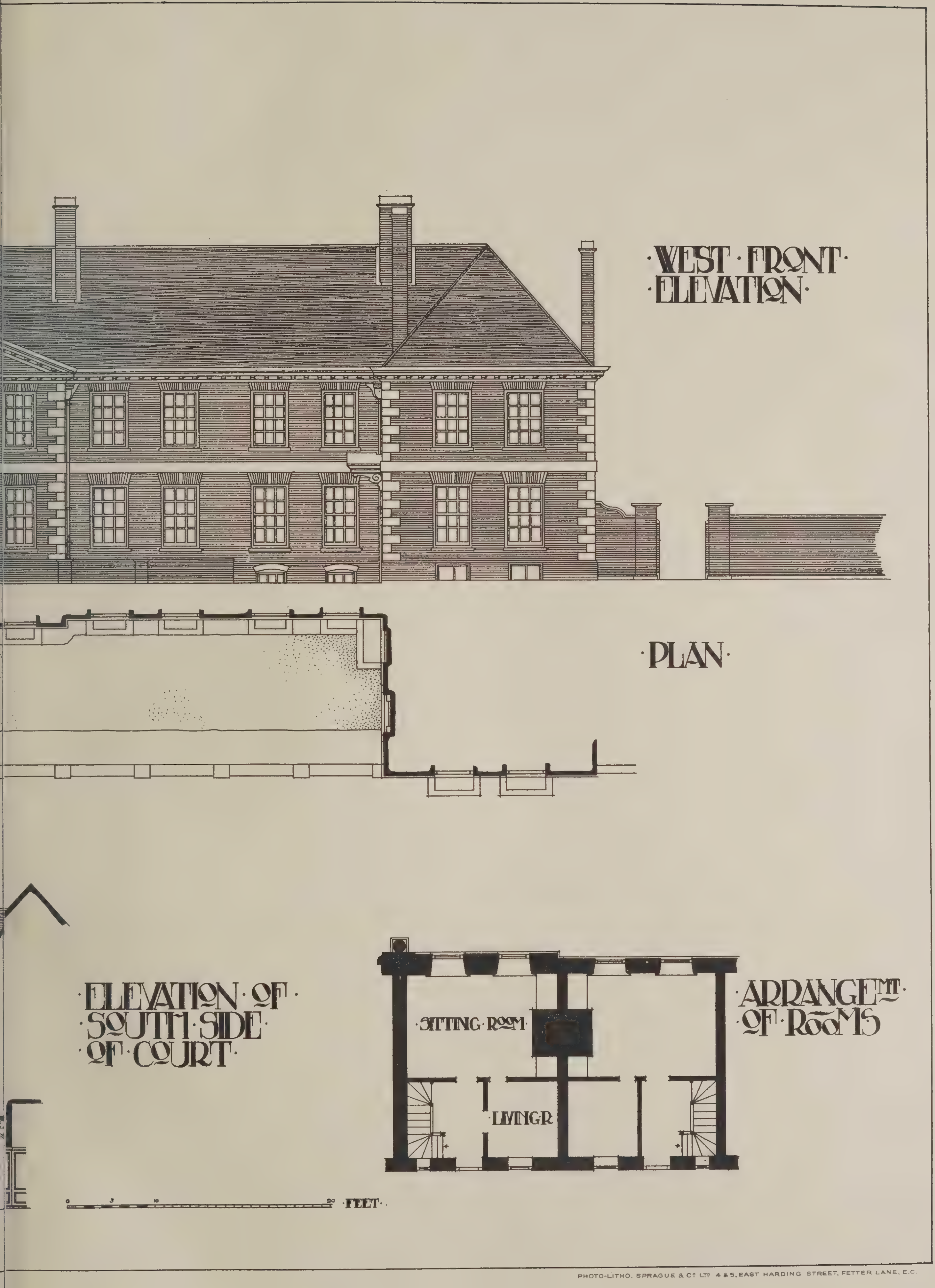

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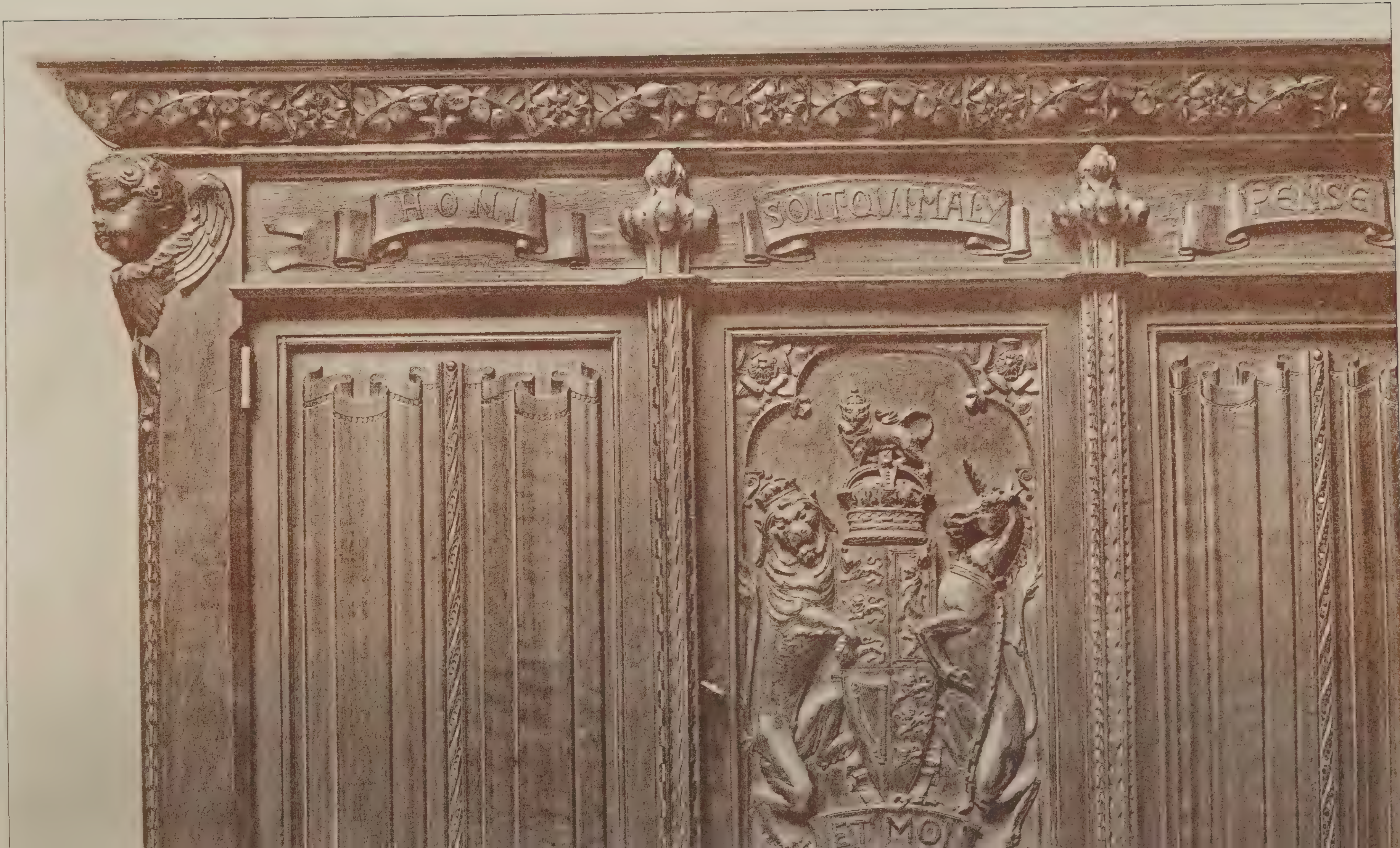
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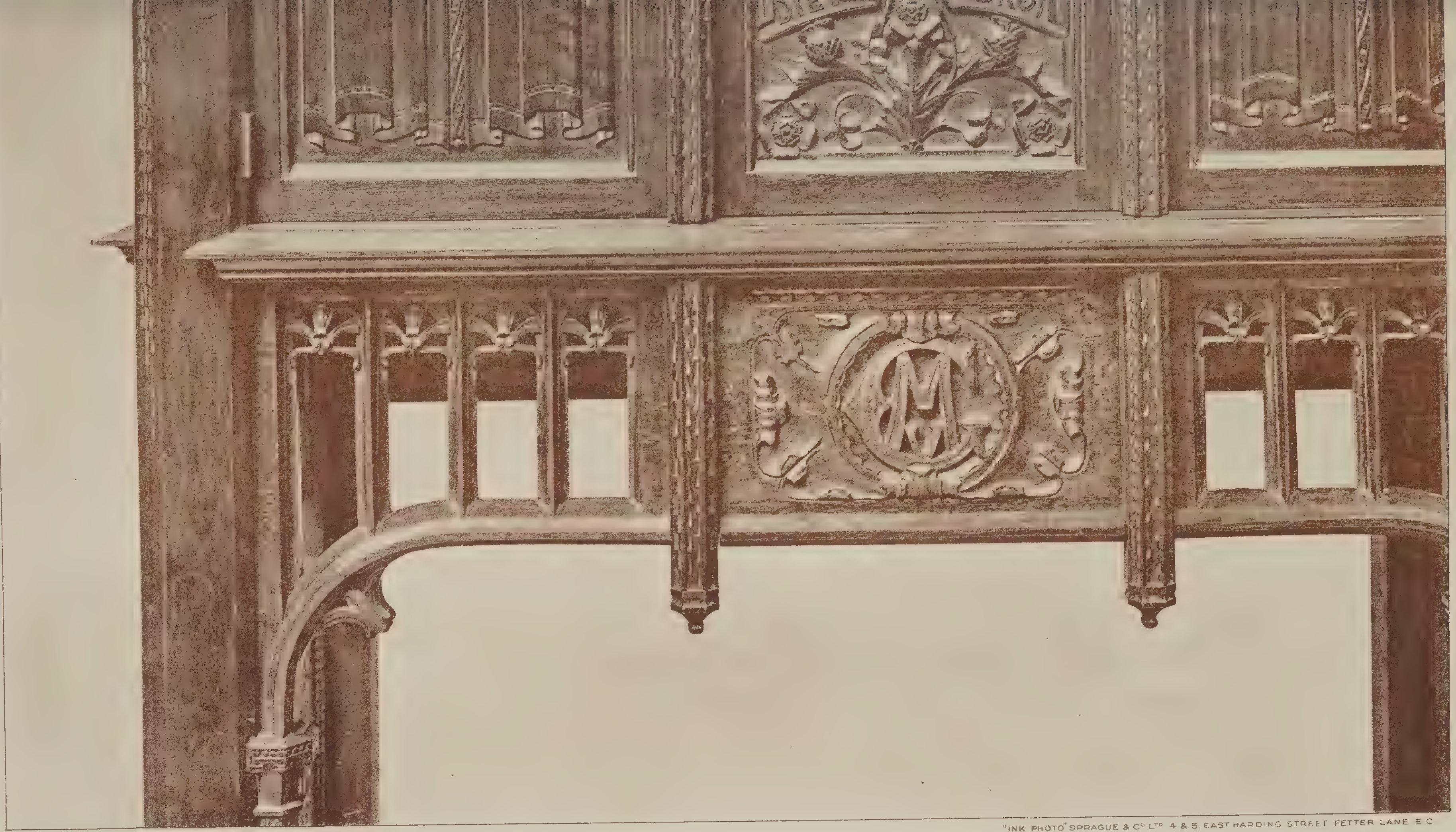

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The Architect.

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FORTHCOMING EVENTS.

Saturday, July 15.

Institution of Municipal Engineers : Annual Meeting of the Western District at Worcester. A paper by Mr. B. Wyand on "Municipal Engineering as a Profession."

Tuesday, July 18.

Northern Architectural Association : Annual Excursion at Wynyard Hall and Grounds.

Somersetshire Archæological and Natural History Society : Annual Meeting at Frome (three days).

Wednesday, July 19.

Institution of Municipal Engineers : Annual Meeting of the North-Western District at Manchester.

Friday, July 21.

Architectural Association : Annual Exhibition of Students' Work. Special Visitor, Mr. Frank Brangwyn, A.R.A. (Closes July 29.)

University College, London : Mr. Leonard Stokes, P.R.I.B.A., opens an exhibition of drawings and designs by the Students in the Department of Architecture. (Closes July 29.)

Saturday, July 22.

Society of Architects : Sketching Party's visit to Oxford.

Institution of Municipal Engineers : Annual Meeting of the Eastern District at Yarmouth.

ARCHITECTURE AT THE ROYAL ACADEMY.

THE President of the Royal Institute, Mr. Leonard Stokes, is represented by three drawings, two of them showing proposed additions to Downside School, near Bath, in a bird's-eye view (1,490) and a detail (1,497) of part of the quadrangle, with a characteristic tower of the type that Mr. Stokes knows so well and so effectively how to produce, and that other people try to follow with a conspicuous lack of success. The third drawing exhibited by Mr. Stokes is "The Oratory, Brompton : showing completion of St. Wilfrid's Hall" (1,678), a water-colour by Mr. Walcot. Mr. Lutyens has only one drawing in the Academy this year, "The Rand Regiment's War Memorial, Johannesburg" (1,492), in which the terraces and garden form part of the memorial as a setting to the arched central structure.

Amongst the many beautiful coloured drawings which are a feature of the Architectural Room this year, Mr. Albert Palser's "A pair of small houses" (1,704) is worthy of notice, and shows a clever composition from modest material. Another close by is "Staircase, 10 Carlton House Terrace, S.W." (1709), by Messrs. Detmar Blow & F. Billerey, a sumptuous piece of interior design.

Mr. J. Harold Gibbons, in his "Heathfield School, Ascot : proposed entrance gates" (1,548), shows in some nice pencil drawings a study of brick piers with vases, which are rather successful. Two different methods of design have been followed by Messrs. W. F. Unsworth, Son & Inigo Triggs; the one in "Rusper House, Horsham" (1,546), suggests a Sussex half timber and plaster house, with hung tile bay, which has by successive additions attained picturesqueness. The other, "A house in Kent" (1,555), appears to have been built in red brick, all at one time. "The Hermitage, Bedwellty, Mon." (1,552), by Mr. John N. R. Vining, is a curious essay in house planning, a Greek cross around an open court, which on the ground floor is cloistered. Hence the dining-room is styled the "refectory." Mr. Norman Evill's "House and stables at Silchester" (1,557), for A. S. Newnham-Davis, Esq., is a pleasantly picturesque, well-grouped composition in half timber, red brick, and tile.

If the requirements of business needed an addition to "The Lygon Arms, Broadway, Worcester" (1,572), that well-known hostelry could hardly have been treated with more strict regard to the real spirit of Broadway than has been done by Messrs. C. E. Bateman & G. H. Hunt. Mr. Edward J. May has had no easy task to deal with the site of "Webbington House, Somerset" (1,574), placed as it is on a steep hillside, but he has successfully accomplished the task as regards arrangement and composition.

It is pleasant to contemplate the possibility of our railway stations being in the future designed by architects instead of engineers when we look at "New buildings for Pinner and Harrow Stations, L. and N.W.R. Co." (1,582), by Mr. Gerald C. Horsley. We hope these may be the precursors of many more. In the "Proposed residence for University men in London" (1,581) Messrs. A. W. S. Cross & Alan E. Munby have produced a dignified example of English Renaissance, of the best type, breathing the spirit of Wren. The interior of a quadrangle is shown in red brick with stone dressings, a building of two storeys crowned by a mansard roof, which gives opportunity for a pediment.

Churches and houses form the larger majority of the buildings contained in the architectural section of the Royal Academy exhibition this year. Amongst the designs for public buildings some unsuccessful competitors for the National Museum of Wales appear, but in the form of perspectives of the exterior without plans, so that their presence on the Academy walls is no evidence that they ought to have received favour in the competition. Some of the Usher Hall designs also are exhibited, to which the same remarks apply.

In a different category are the drawings of "Glamorgan County Hall, Cathays Park, Cardiff" (1,668), by Messrs. E. V. Harris & T. A. Moodie, which show the front and rear of an actual building, the result of success in competition. The building is, though in no way a reflection of its neighbours, worthy of its position amongst the remarkable group of fine public buildings collected in Cathays Park, which promises to make Cardiff the most remarkable city in Great Britain in respect of modern architecture. Another public building of striking character is shown by Messrs. Gibson, Skipworth & Gordon's design for the new Guildhall, Westminster, of which a general perspective view (1,655) and a detail perspective of the entrance (1,660) are exhibited. As in many of Mr. Walcot's water-colour drawings of architecture there is in these a mysterious suggestion rather than definition of the features of the design.

Good examples of breadth in architecture may be seen in Mr. Charlie Castelow's drawing of "A country house, Well, Yorks" (1,662), and "House in Chelsea Vale" (1,653), by Messrs. Ralph Knott & E. S. Collins. The former is a stone-built house with mullioned windows, in which the ancient proportion of window to wall is characteristic of the period of English architecture on which the design is based; but in the latter we have an abnormal distance between the heads of windows on one floor and the sills of those above them, which is not at all in keeping with the traditional treatment of eighteenth century Chelsea, but assists in the attainment of breadth. There is quite a flavour of the modern L.C.C. architectural department about this design, which is not surprising.

The representation of old buildings in the Academy seems to be relegated to the Water-Colour and Black and

White Rooms. In the former we have a fine drawing by Mr. R. Phenè Spiers of a "View across nave of Great Hall, Karnac" (819). Other examples of architecture depicted in water-colour are "Sunny Palma" (855), by Mr. Tristram Ellis, in which the city dominated by the cathedral is viewed from the sea; "The Greek Theatre, Taormina" (878), by Mr. Alex. J. Mavrogordato, with the remains of the skene and grass-grown slopes of the auditorium; "The Giralda, Seville" (893), by Mr. Henry C. Brewer; "The enchanted castle" (922), by Sir Alfred East, A.R.A., a phantasy of Mont St. Michel; "The Church of St. Magnus, Lower Thames Street" (937), by Mr. W. Dacres Adams, a large detailed study of the arched footway; "St. Gilles, Caen" (987), by Mr. John Sowden, a detail of the Flamboyant lateral porch; "La Porte de Nevers, St. Valery-sur-Somme" (1,000), by Mr. George Ward, a riot of rich and broken colour of brick, stone, and slate; "The Rathaus portal, Rothenburg" (1,017), by Miss Madge Dawson, a study in green and purple; "Mariatheresien Strasse, Innsbruck" (1,026), by Mr. John Glynn; "A quaint corner: Caudebec, Normandy" (1,028), by Mr. Frank Holford; "Interior of San Vitale, Ravenna" (1,034), by Mr. Harold Sund; "Evening; the Rameseum, Luxor Egypt" (1,038), by Mr. Lancelot Crane; "Nevers, Porte du Groux" (1,039), by Mr. Charles Maundrell; "Venice," by Mr. Cyril A. Farey.

In the Black and White Room ancient architecture is delineated, mostly in etchings, by "St. Wulfran, Abbeville" (1,349), by Mr. William Ansell; "Church Lane, "Shepton Mallet," by Mr. Nathaniel Sparks; "Santa Maria del Sasso, Locarno," by Mr. Percival Gaskell; "Rue Damiette, Rouen" (1,376), by Gertrude Hayes (Mrs. A. K. Morgan); "The portals of Bourges Cathedral" (1,382), by Mr. Axel H. Haig; "St. Maclou, Rouen" (1,390), by Gertrude Hayes; "Saint Ouen, Pont Audemer" (1,396); and "Marché au Blé, Le Neubourg" (1,399), by Mr. Charles J. Watson; "Cour d'Albane, Rouen" (1,429), by Mr. William Ansell.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

THE drawings submitted for last month's subject of a piece of wrought-iron work executed prior to A.D. 1800 are of a generally satisfactory character.

Mr. F. J. Lenton has measured a pair of well-designed wrought-iron gates now at Berrystead House, Oundle, Northants, which, with the lead figures on the piers, were removed from Stoke Doyle manor. The date of the work is seventeenth century and shows the influence of Jean Tijou. Mr. Lenton's drawing is well executed in blue-black brush work, heightened by Chinese white.

Mr. T. Owen Thirtle has selected for measurement a small wrought-iron gate at the head of the staircase in the Guildhall, Norwich, which he has drawn to inch scale, with details half full-size. This is not a good scale for details, which should be either full size or not larger than one-third full size. Mr. Thirtle's drawing fails in the representation of leafage, and would be better if drawn in colour with a brush rather than in pencil with a flat tint.

"Le Quayt's" contribution is an elevation to inch scale in plain ink outline of the entrance gates to the Treasurer's House at York. This is eighteenth-century work and a good piece of design, to which our contributor's drawing hardly does justice. The curves are raggedly put in and the leafage not well expressed, whilst the shaky line fails to suggest antiquity, as is the evident intention.

"Plato" sends drawings of two gates, both at Enfield, Middlesex, one of which shows the curious quasi-Gothic affectation which is seen in some late eighteenth-century work and culminated in the efforts of Batty Langley. "Plato's" drawings are to inch scale with details half full-size, but being wholly in line, with scarcely a suspicion of shading, are not satisfactorily expressive.

Mr. H. A. Welch has given us a sheet of "measured notes taken from S.K. Museum, &c.," of a number of small pieces of wrought-iron work, English, French, and Italian, rather a heterogeneous and haphazard collection. The scale is an inch and a half to the foot, which is quite small enough for the size of the specimens selected, and the drawings wholly in pen-and-ink outline, which, as with other contributions, fails in the leafage.

"Sans Peur" sends a nicely-executed pencil drawing to inch scale, with a few details quarter full-size, of some beautiful gates at the Manor House, Jesmond.

Mr. E. H. Gibson has sent two drawings, to a large scale, not specified, of ironwork from churches in Leeds: a mace-rest from St. John's and a piece of chancel railing from Holy Trinity. With such large scale drawings, which are commendable, there should be given more information than is supplied by a pure elevation. The thickness of bars and the widths of straps have a vital influence on the design of wrought-iron work. The neglect of this fact has been somewhat general amongst our contributors, but is more noticeable with Mr. Gibson's drawing on account of the scale.

We have awarded a prize of one guinea to "Sans Peur" and half-a-guinea each to Mr. F. J. Lenton and Mr. E. H. Gibson.

This month's work closes the competition for our Travelling Studentship for the year, which has been won by Mr. A. E. Lowes, who has contributed under the motto "Sans Peur" very regularly from the commencement of the club, and whose work has during the last eighteen months shown marked improvement. Mr. Lowes has been run very close in the competition for the Studentship by "Le Quayt," who has also worked very consistently during the last twelve months.

NOTES AND COMMENTS.

The annual report of the Council of the Architects' Benevolent Society, which has recently been issued, is evidence of the good work that has been done in extending assistance to unfortunate members of the architectural profession. A tolerably sure test of the ability with which a charitable institution is conducted may be found in the relation between the gross income and the amount of the working expenses. In this Society the latter is less than ten per cent. of the former, which is a low figure. Subscribers and donors may, therefore, feel assured that their contributions are not wasted, but that the utmost amount of relief is granted to deserving applicants that the income will permit. We should, however, like to see this income, which for the past year was just under £1,200, very considerably increased. Even in the present hard times this does not represent the full extent of the support that should be accorded to the Society by architects in practice, nor is it sufficient to adequately relieve the necessities of those who fully deserve help.

The second annual exhibition of work executed by students of the School of Architecture connected with the Liverpool University was held last week in the exhibition room at Liberty Buildings, School Lane. Among the examples of design and measured work were some very promising specimens of draughtsmanship, and no small amount of originality. Interest was added to the collection by the perspectives, elevations, and detail drawings of cottages submitted in competition for three prizes of £25, £10, and £5 for the best designs for a block of seven cottages, offered by Sir W. H. Lever, and the first premium for these has gone to Mr. R. F. Dodd, with Mr. W. E. Davies second, and Mr. A. R. Sykes third.

To the list of architect-knights has now been added the name of Sir Thomas Manly Deane, R.H.A., on the occasion of the opening by H.M. the King of the new College of Science in Dublin, of which Mr. Deane, in conjunction with Sir Aston Webb, was the architect. We offer our congratulations to the distinguished representative of Irish architects who, as "Tommy" Deane, was known to, and popular with, a large number of his English confrères.

There is an unusual but gratifying spirit of good sportsmanlike feeling in the following letter, which has appeared in the *Manchester Guardian*:

Sir,—Lest recent correspondence should make it appear that there is any general dissatisfaction with the result of the preliminary competition, we, the undersigned Manchester competitors, wish to say that we consider that the Corporation has conducted the competition on excellent lines, and that there is nothing in the assessor's report that would lead us to think that the selection of the ten final competitors is anything but a fair one.—Yours, &c.,

Harry S. Fairhurst; France & Laycock; J. Gibbons & Son; Henry Goldsmith & Son; Lindsay Grant; E. W. Leeson; P. D. Lodge; F. P. Oakley & G. Sanville; J. Henry Sellers; Woodhouse, Corbett & Dean.

The Council of the King Edward National Memorial desire at least three prominent persons in every town and village throughout the country to volunteer to act as a local committee of the Hon. Grand Council, which aims to purchase the Crystal Palace as the King Edward National Memorial. They also require three influential persons in each town and village to act as collectors of instalments toward the £1 1*s.* life-admission tickets, and to sell Crystal Palace stamps on commission. Communications are invited from those willing to offer their services or to suggest other persons in each locality most suited to the above offices, so that the persons can be officially approached. Specimen Crystal Palace stamps will be sent to each correspondent. Letters should be marked "Committee," and addressed to the Right Hon. the Earl of Kinnoull, D.L., Hon. Treasurer the King Edward National Memorial, 26 Shaftesbury Avenue, London, W.

The Birmingham City Council has resolved, in view of the bequest of the late Mr. John Feeney, to erect further art galleries beyond those already arranged in the Council House extension, now approaching completion. These additional art galleries will be erected in Great Charles Street and the space below them is already bespoken by some of the administrative departments of the Council.

The Public Health Committee of the London County Council have made the following report, which will, if the suggestions therein contained are adopted, lead to a material alteration of the present law as interpreted by the Judges:—We have had under consideration a letter dated March 13, 1909, from the Hampstead Metropolitan Borough Council, calling attention to an appeal (Kershaw *v.* Brooks) by the borough council, which came before the Divisional Court by way of special case from the decision of Mr. Plowden, the metropolitan police magistrate, dismissing certain summonses issued under the by-laws as to drainage and as to deposit of plans made under section 202 of the Metropolis Management Act, 1855, and the Metropolis Management Acts Amendment (By-laws) Act, 1899. The question for decision was as to the person liable for an infringement of the by-laws. The Hampstead Metropolitan Borough Council summoned the responsible person actually carrying out the work, and the summonses were dismissed by the magistrate on the ground that they should have been issued against the person who ordered the work to be done. The divisional court sustained the decision of the magistrate, with the result that the practice hitherto adopted of proceeding against the responsible person actually carrying out the work would no longer be open to the metropolitan borough councils, but inquiries would have to be made as to who was responsible for the work being done. As the matter was of serious importance to the metropolitan borough councils, the Hampstead Borough Council asked the Council to amend the by-laws so as to validate the practice which has hitherto existed, and to make it clear, as suggested by the Lord Chief Justice in his judgment, that a builder or contractor in control of the works shall, in addition to the existing remedy against the owner, be responsible in cases of breaches of the by-laws. We have been in communication with the Local Government Board as to the desirableness of securing an amendment of the by-laws in order to place upon the builder the responsibility of complying with the by-laws. The Board stated in reply that it would be prepared to consider the terms of any by-laws proposed to meet the decision referred to, at the same time intimating that it was not satisfied that it was necessary to amend the by-laws, the effect of the decisions in the case of Kershaw *v.* Brooks, and in that of Brown *v.* Edmonton being to show that the applicability of the by-laws to a particular person must be judged by the facts in each case. In view of this expression of opinion we deemed it advisable to obtain the views of the metropolitan borough councils on the subject. In answer to a communication addressed to them, we learnt that most of the metropolitan borough councils were in favour of an amendment of the by-laws as suggested by the Hampstead Borough Council. As the result of further correspondence with the Local Government Board, the Board has intimated that it will be prepared to approve by-laws making the builder responsible in the event of any breach of the by-laws. We have accordingly had draft by-laws prepared in the form in which the Board is prepared to approve them. The by-laws will be subject to the provisions of sections 202 and 203 of the Metropolis Management Act, 1855, which provide that the by-laws, if made at one meeting of the Council, shall be of no force and effect until submitted to and confirmed at a subsequent meeting. We recommend—That by-laws as follows be made by the Council in pursuance of the provisions of section 202 of the Metropolis Management Act, 1855, and the Metropolis Management Acts Amendment (By-laws) Act, 1899:—"Notwithstanding anything contained in the by-laws made by the London County Council in pursuance of the provisions of section 202 of the Metropolis Management Act, 1855, and the Metropolis Management Acts Amendment (By-laws) Act, 1899, in the case of any work done to or in any pipe, drain, or other means of communicating with sewers and the traps and apparatus connected therewith, such plans, sections, and particulars relating to such work as are required to be deposited by the said by-laws shall be deposited by the builder and he shall be the person liable to the penalties provided in the said by-laws for the failure to deposit such plans, sections, and particulars. Such builder shall, in carrying out any such work as aforesaid, observe all the requirements contained in the by-laws made by the London County Council under the provisions of section 202 of the Metropolis Management Act, 1855, and he shall be liable to the penalties provided for a breach of the said by-laws. In these by-laws 'builder' means the builder, contractor, or person actually carrying out the work, but does not include a workman in the employ of such builder, contractor, or person."

ST. PAUL'S BRIDGE.

THE report by Sir William Emerson, Mr. T. E. Collcutt and Mr. J. J. Burnet on the scheme proposed by the Corporation is entirely in favour of that scheme and is as follows:

1. We have now completed our inquiries and consultations, and have the honour to reply to your letter inviting our opinion and advice in respect to the instruction of the House of Commons to the Committee on the Corporation of London (Bridges) Bill "not to agree to any scheme for the construction of the proposed new bridge, including the approaches thereto, until they are satisfied that the scheme, both in respect of architectural design and convenience of traffic, is the best adapted to the public needs and best suited to the character of the site."

2. We construe the words "the scheme" in the instruction as meaning the official scheme of the Corporation or any alternative scheme, for a bridge to open out at or near St. Paul's Churchyard, which is the "site" in question. We

have considered the scheme and also some other suggestions. The instruction opens up the three questions of—(*a*) The best adaptation to public needs; (*b*) appropriateness to the character of the site; and (*c*) architectural design.

3. We accept as essential conditions for a satisfactory scheme the following requirements:—(1) That the projected bridge must have its roadway at the level above high-water mark shown upon the section; (2) that the linking of the northern and southern tramway system is an integral part of any scheme; (3) that the roadway from the bridge must be carried as a bridge over Queen Victoria Street.

4. As to (*a*) adaptation to public needs, the object of the Bill is to relieve the congestion of traffic between south and north over London, Southwark, and Blackfriars Bridges, from a point in Southwark, near Marshalsea Road, direct to the main traffic roads to the north, *via* Aldersgate, and to offer facilities for connecting the tramway systems on the south with those on the north. After the most careful consideration, both separately and in frequent consultation, of various suggested or possible routes, and study of the general plan of London roadways and contemplated tramways in the neighbourhood of St. Paul's, we are of opinion that the line of route proposed by the Corporation is best adapted to the public needs, and to fulfilment of the objects of the Bill.

5. As to (*b*) appropriateness to the character of the site, we would point out that in the Corporation scheme the situation of St. Paul's in the relation of its line of axis to the central line of the river is not a factor. The area of the Churchyard would be increased, and there would be no consequential obstacle to the consideration of future improvements of the Churchyard. Moreover, better views of the Cathedral would be secured on the only side on which this can be done, without disturbing the picturesque charm of present surroundings. There is the further point of great practical importance that, owing to the depth of the Cathedral foundations and the quality of the subsoil, it is only on the eastern side of St. Paul's that a subway for tramways can be constructed above the level of the foundations without menace to the structure. (It is understood, of course, that the subway is not to be deeper than shown on the section.)

Having carefully considered these points and all the surroundings of the site we are of opinion that the alignment proposed by the Corporation is the one best suited to the character of the site.

6. In respect to (*c*) architectural design, we are in complete accord with the opinion of the Council of the R.I.B.A., that an architect or architects should have been appointed to collaborate with the engineers as to the general design of the bridge and its approaches when the scheme was initiated. In making this observation, the Council of the Institute were undoubtedly actuated by the desire—shared, of course, by the City authorities—that a fine monumental bridge of masonry should be erected. In skilled hands the bridge and its approaches can be made a magnificent addition to the river scenery about the City.

7. Since the scheme was published side issues have been raised as to the "opening up" of St. Paul's. At first sight, and without detailed expert scrutiny, the idea that the opportunity might be taken to open up a vista terminating in the south transept of the Cathedral is attractive. The project shown by black lines on the plan has appealed to some architects and to a section of the public, and there has been a tendency to subordinate the main purpose of the new avenue of traffic between north and south to what would at the best be a subsidiary aim. In considering the project three points of great importance have to be borne in mind. They are:—(i.) The alignment of the bridge in relation to the river, since the proposed vista would only be obtainable by the building of a skew bridge; (ii.) the width of the northern approach to the Cathedral; and (iii.) the possibility of future river embankments being constructed below Blackfriars.

8. We are of opinion that the suggested alignment is not good, and that as it would be almost impossible to make a satisfactory monumental design for such a skew bridge in masonry, it is probable that the bridge would have to be of steel—a contingency which the R.I.B.A. evidently wished to prevent.* There is strong presumptive evidence that Wren did not design the side elevation of the Cathedral to be looked at from any great distance. This is shown by the bolder treatment of the west front and of the dome as compared with the comparatively superficial ornamentation of the other wall surfaces. And in this matter the great architect followed the best traditions of his profession. We know of no famous public building, either here or on the Continent, in respect to which it has been considered necessary to arrange great roads leading to the side of the structure. Wren evidently did not contemplate such approaches in the case of the Cathedral, but he did contemplate a wide road at the east end, and that he was capable of taking large views as to future requirements was shown by his well-known plan for the rebuilding of London. We may add that the Greeks—great artists—took especial care that the Parthenon should not be approached by a road leading directly up to it. [* I am of opinion that it would be possible to construct a bridge over the river giving a vista of St. Paul's, which I should much prefer if found practicable.—T. E. COLLCUTT.]

9. Further, it is to be observed that views not less interesting than the suggested "vista" will be opened up by the roadway proposed by the Corporation, and that it would not prevent improvements subsequently being made, if necessity arose, in connection with a general scheme for improvement of the Churchyard. We wish it to be clearly understood, however, that in our opinion there is a limit to such "improvement," and that to exceed it would be to place Wren's design at a positive disadvantage by bringing it under conditions it was not designed to meet. But such limit would not be exceeded by the improvements the proposed Corporation route would effect, and facilities would be offered for opening up picturesque views of St. Paul's which have hitherto been obscured.

10. While it has been no part of our duty to examine with care the financial aspects of the conflicting schemes which have been the subject of public discussion, we feel it right to say that we have been impressed by the extent to which the "vista" scheme would involve altogether heavier expenditure, out of all proportion to the Corporation project.

11. With respect to the suggestions we are asked to make, we agree with the Council of the R.I.B.A. in their recommendation that architects should collaborate with the engineers in the designs for the bridge, the archways over Queen Victoria Street and Thames Street, and the approaches as well as the accesses from the lower and higher levels, and in the debouchment of the roads. If the general scheme is passed by Parliament we advise that such architect or architects be appointed.

12. We submit the following suggestions for improvement of the scheme as shown on the plan:—

(1) That where the bridge road debouches on to Cannon Street it should be opened out as much as possible within the lines of deviation, and that the corner building to the south-east of Old Change be also acquired, thus opening that corner towards St. Paul's.

(2) That the building frontage along Old Change should be no nearer to the east end of the Cathedral than at present, any future buildings following that line, and that the whole of the existing buildings between St. Paul's and Old Change should be removed.

(3) That at some time the property now obscuring the south end of the Post Office in St. Martin's-le-Grand be acquired, and the space opened up and arranged so that a fine suitable architectural feature might centre on the line of the new bridge. If this were done it would also be possible for Foster Lane to somewhat relieve the traffic by St. Martin's-le-Grand.

These alterations would give views of both the south-east and north-east sides of St. Paul's not hitherto obtainable. Further, ample space would be provided for the traffic at the road junctions, and right-angled crossings would be avoided.

Mr. A. J. Barry, engineer to the Dean and Chapter of St. Paul's, has expressed in a very forcible manner his opinion on the relative danger to the stability of the Cathedral of the southern and eastern tramway routes in the following letter to Mr. Basil Mott, the Corporation's engineer for the bridge:

> In reply to your letter of the 27th inst., in which you inquire what my views would be as regards the possible damage to St. Paul's Cathedral if a tramway subway were constructed nearer to the south side of the Cathedral than shown on the plans that have been discussed between us, I beg to say at once that I should regard with the gravest concern any proposal that would involve the excavation of the subsoil nearer to the Cathedral than is shown on the plan you submitted to me, more particularly if such disturbance of subsoil took place on the south side of the Cathedral.
>
> After discussing with you the *maximum* depth to which the foundations of the tramway subway as proposed to be constructed under your Bill of this year should be carried, the horizontal distance of the same from the foundations of the Cathedral, and after agreeing on certain protective works to be carried out before the proposed excavations were commenced, we eventually agreed with you certain clauses for

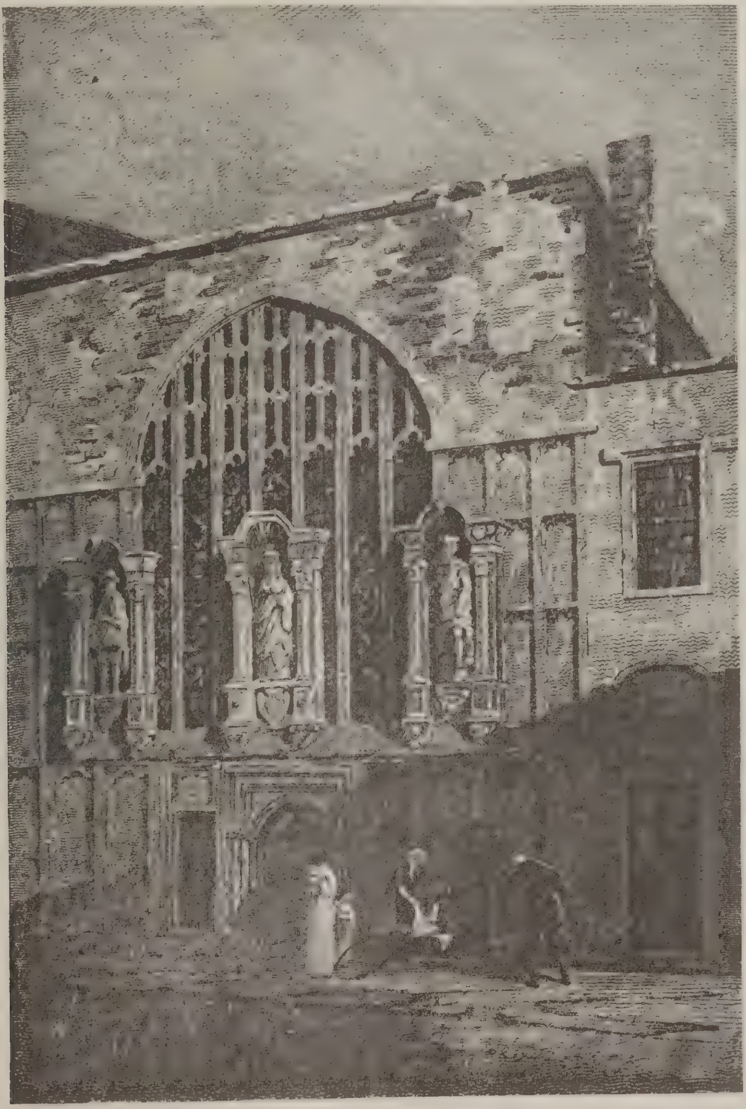
the protection of the Cathedral. In consenting to the disturbance of ground even in the situation as then proposed we were not without some misgivings, and in accepting the clauses which were finally agreed we were actuated by the desire not to interfere if possible with a work of great public importance. We were influenced, too, by the fact that the proposed excavations for the tramway subway would only affect that part of the Cathedral foundation which carries the least weight and is most secure.

When you inquire what my views would be as to the possible danger to St. Paul's if the subway were constructed nearer to the south side of the Cathedral, I presume you have in your mind the construction of a tramway under St. Paul's Churchyard from the point about opposite to the centre of the south transept window eastwards and round the east end of the Cathedral. I have no hesitation in saying that from an engineering point of view I should regard the carrying out of such a proposal as certain to cause the most serious damage to the structure of the Cathedral. The main dome is, as perhaps you know, carried on four main corner piers, in addition to eight intermediate ones. The four piers on the north side have settled very little. In every case the piers carrying the south segment of the main dome have settled considerably more than any of the others. The south wall of the west transept has developed serious cracks, and there has been a general movement or draw of the whole structure towards the west and the south. This is evidenced by numerous cracks in the building, and by the fact that the south wall of the building is already out of the vertical. Generally I regard this part of the Cathedral as already being in a state of comparatively unstable equilibrium, and I should regard a far less serious disturbance of the subsoil than that which would be involved by the construction of so large a work as a tramway subway as close to the south wall of the building as I understand is proposed as entirely unpermissible in the interests of the security of so important a public structure as the Cathedral.

THE GUILDHALL, LONDON.*

LLYN-DIN—the Lake Fort—was the earliest name of London. The Romans called it by a title which would have suited it as well in after generations—Augusta—but after their departure the Latinized form of the British name prevailed, and remains to this day. The earliest recorded fortification of the city extended between the river Fleet on the west and the Wallbrook on the east. This citadel was built somewhere about A.D. 43. The Romans, on taking possession, built the first wall between A.D. 350 and 369. It enclosed 380 acres, and was three miles two hundred yards long. On one side was the river, and the extent of the wall may be gauged by the position of the various *gata*, Dowgate, Ludgate, Newgate, Aldersgate, Bishopsgate, and Aldgate. There were also the *gata*—or ways—on the river side, Billingsgate and the smaller posterns, one on the north side of Tower Hill, where the name "The Postern" might have been seen at the corner of a narrow street ten years ago, and on the landward side we have Aldermanbury Postern, which served a similar purpose. Then there were the various bastions, one of which, in London Wall, when demolished, was found to contain many portions of sculpture which have found their way to the Guildhall Museum. The bastion in Cripplegate Churchyard still stands, and one has been excavated in digging the foundations of Christ's Hospital.

There is but little of tradition or custom that can be



GUILDHALL CHAPEL, LONDON From an old Engraving.

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* Read at a meeting of the Upper Norwood Athenæum by Mr. Walter B. Briant.

traced to the Roman occupation, but we find most interesting antiquities, foundations of buildings, and mosaic pavements; they also left as ports Queenhithe and Billingsgate, and a fortified bridge.

Augusta seems to have been abandoned and become ruinous when the Romans retired, so that when the Saxons rebuilt the city it was on different lines to suit their inclination. Unhappily for us, the fire of 1135 destroyed practically every trace of the 400 years of this Saxon occupation, and there is not a stone that can be identified with the period. Through successive changes, Roman, Saxon, Danish, Norman, through the vicissitudes of nine visitations by plague, four or more destructive fires, London in general and the City in particular has ever been growing in importance.

The word Gild is of Saxon origin, and is derived from Geldan, or Gildan, which means "to pay," because the members of societies so-called, whether united for civil or religious purposes, were "Gildare"; that is, to pay something towards the support of the brotherhood to which they belonged. A Guild was a body of men associated together, under oath, for a common purpose.

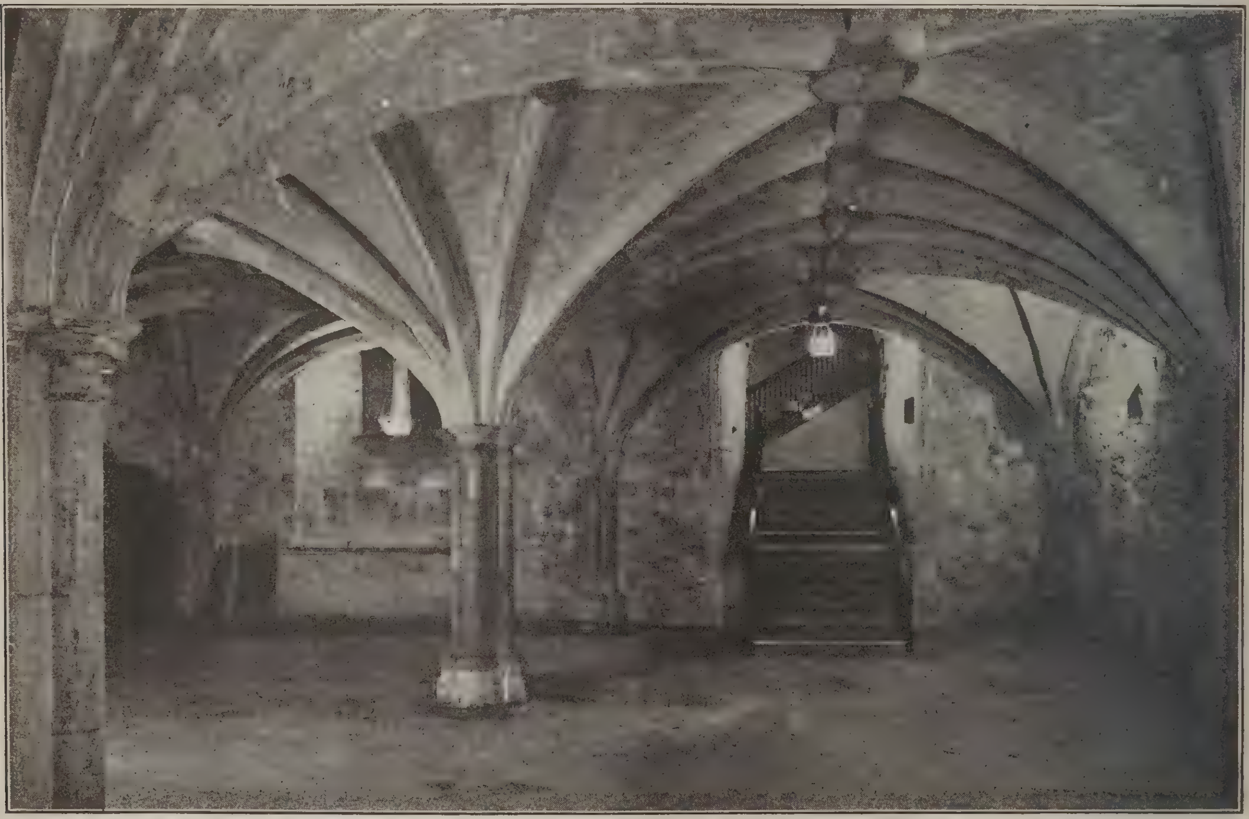
According to Stow, in the days of King Edgar thirteen knights "requested to have a certain portion of the land east of the city forsaken by its inhabitants by reason of too much servitude, with the liberty of a guild for ever fulfilling the conditions laid down; the King named it the Knighten Guild in Portsoken (Ward)."

It is beyond the scope of this paper to deal with the objects of guilds generally; that they were religious, social, and mercantile there is no doubt, but the formation of the companies was of a more mercantile character. When licensed, the companies exercised a vigorous control over their various trades; settled the hours of labour, wages, and output, and they were governed by their own wardens, who tested the quality, weight, and length of the goods to be sold, and generally maintained the common interests of the trade.

The oldest company of all is the Weavers, which received its charter from Henry II. Although licensed, they were not incorporated until the reign of Edward III. There were eighty-nine in all, of which seventy-six exist to-day, the leading ones being the Weavers, Mercers, Grocers, Drapers, Fishmongers, Goldsmiths, Skinners, Merchant Taylors, Haberdashers, Salters,- Ironmongers, Vintners and Clothworkers, but except for the Goldsmiths, Apothecaries, and Stationers they now exercise no control over their trades.

Besant reminds us that the chief market-place was in Cheapside, a broad, open space with booths and sheds; on the north side there was Wood Street, Milk Street, Ironmonger Lane, Honey Lane, the Poultry; and on the south, Bread Street, Candle Street, Soap or Soper Street, Fish Street, and (Moneychanging or) Old Change. The Companies, among other things, grouped their trades together in certain places or localities. The Companies early sought to form a common stock for the relief of poor or decayed members, and while supporting a variety of charities, founding schools, almshouses, hospitals, and the like, they used also to advance varying sums of money to start beginners in business.

London, as a city, has always had a ruler of its own. In Roman times the Prefect served as governor, magistrate, and custodian, and its privileges have ever been jealously guarded for the citizens by him. With the advent of the Conqueror came the first of the Charters, which he saw it was wise to grant, guaranteeing the liberties and self-government of the citizens. It was in 1189 the first Mayor was appointed, Henry Fitzalwyn, who retained office until 1212. Eleven years later the Court of Aldermen was formed, and in 1348 the first Common Council was held.



THE CRYPT OF THE GUILDHALL, LONDON.

The City has had conflicts of its own to fight, as well as to settle disputes of others. It backed up the barons in their demands for a charter of liberties, which John so reluctantly granted; it was at variance with Plantagenets and Tudors, and in particular with the Stuarts. Charles I., in demanding the surrender of the five members of Parliament, did much to estrange the loyalty of the citizens; Charles II. again contested the right of the City to go beyond what it claimed as its chartered powers. "Quo warranto" was issued, and the citizens were deprived of their right to elect the Lord Mayor and aldermen. This continued for six years, Charles II., afterwards James II., making the appointments. When the charter was restored the sympathies of the citizens had gone in favour of the Prince of Orange.

Lord Mayor Beckford in 1770 remonstrated with George III. over his indifference to the citizens' addresses, and that so vigorously as to win for himself a lasting monument. Again the City protested against the policy of the same King's Ministers towards the American Colonies, "big," as they said it was, "with all consequences which can alarm a free and commercial people."

In 1807 Sir Francis Burdett, Mayor, was committed to the Tower by the House of Commons for upholding the right of freedom of speech, but on the protest of the Livery he was released at once. But with all their conflicts the City has been loyal to the powers that be, and ever delights to entertain and honour kings, princes, and famous men, of whatever race or station.

As Chief Magistrate, the Lord Mayor has had to preside at many trials of historical importance. That justice has not always been administered, and at times vindictive, brutal, and unwarrantable sentences passed, must be always a stain on the otherwise wise rule of the City.

To recall a few of the more important. Henry Howard, Earl of Surrey, was tried in 1547 for high treason; he was convicted, and afterwards beheaded on Tower Hill. Lady Jane Grey, her husband, Lord Guildford Dudley, and his two brothers were tried for high treason, and all beheaded. Lady Jane had consented to succeed Edward VI. This passing over of Mary was done with the concurrence of the Lord Mayor, Corporation, and others, but Mary naturally resented it, and won back for a time the goodwill of the citizens, to whom she had appealed personally. Cranmer, for complicity in the same connection, was also tried and beheaded.

In 1450 Jack Cade, with a body of 15,000 followers, entered London, and compelled the Lord Mayor to pass sentence on Lord Saye and Seal, a favourite with the King, and the sentence was carried out in Cheapside.

The trial of Anne Askew, "for speaking against the Sacrament of the Altar" during the reign of Henry VIII., was the most notorious of any. She underwent six examinations or trials, three of them at the Guildhall. After being racked she was burnt alive at Smithfield. Sir Nicholas Throckmorton in 1554 was tried before Commissioners, including the Mayor, for treason against the Queen by complicity in Wyatt's rebellion. The jury found him not guilty, but so dissatisfied were the Commissioners with the verdict that they committed the jury to prison. Four were released, but the others were fined in amounts varying from 2,000*l.* to 60*l.*

Richard Baxter in 1685 was tried before Lord Chief Justice Jeffreys for writing a paraphrase upon the New Testament, and was fined 500*l.*, which afterwards was remitted. He was released nine months later.

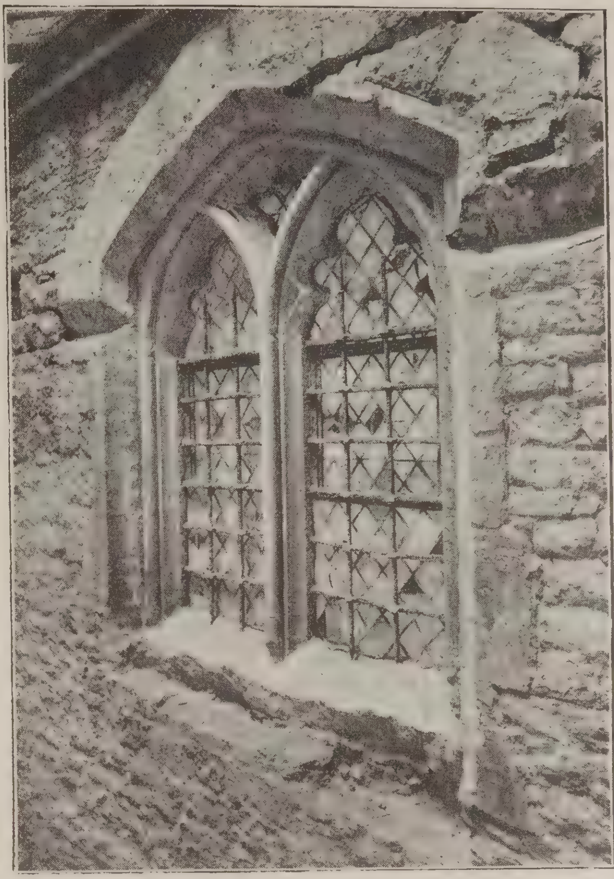
The word Guildhall, to which as a structure we will now turn, was variously spelt "Gyhald," "Guyldhall," "Yieldhall," "Yeldehall," meaning the place appointed at which the burgesses should yield or pay their taxes. It is probable that a building existed in 1189 for this and other civic business, one Richard Fitzreiner giving a portion of his estate for the purpose. It is supposed to have stood on the east side of Aldermanbury, but further west of the present building, and quite independent of it, as Mr. Sydney Perks, the City Surveyor, leads us to believe. The first building was described by Fabyan, an alderman, as "An oylde and lytell cottage;" and in 1411, "Ye Guyld Hall of London began to be new edyfied."

Although commenced in 1411, several years elapsed before the hall was completed, lack of funds required being the reason. In 1422 Richard Whittington's executors contributed 20*l.* to the paving, and a year later another 15*l.*, with a further contribution in 1423 towards glazing the windows. Originally the building was lower than we see it to-day. After the fire in 1666 Wren added a storey with circular-headed windows and a flat plastered ceiling. Illustrations of this may be seen. It was intended to be of a temporary character only, but it stood for 200 years, until the roof was entirely reconstructed from the designs of Sir Horace Jones in 1864. The front, designed by Dance, was also dealt with, and several other alterations made. The raised portion of the floor at the east end, no doubt, was for the purpose of a dais, while the higher vaulting in the eastern crypt just below gave head-room for an imposing doorway, the levels outside being much lower.

The porch, which is in a fair state of preservation, is part of the original building built in the years 1425-30. At one time it was 63 feet wide, and had two entrance doorways, and was in part three storeys high.

The vaulting shows the arms of Edward the Confessor and Henry VI. Six statues decorated the front at a later period, but nothing is known of them since 1846, when they were sold for £100.

The crypt is especially interesting; it is a double one, with a dividing wall. The western portion shows little of architectural interest in its present condition. The vaulting collapsed at the great fire, and instead of being restored in stone, the floor of the hall was carried on the brick arches as we see them. Mr. Sydney Perks, the City Surveyor, has had some examinations made, which go to prove it was undoubtedly part of the original basement built in 1411 and used for storage and other general purposes. The eastern portion was designed with more regard to effect, and in as good a manner as is the porch with Purbeck shafts and firestone ribs to the vaulting. Various stairways have been opened up, showing ways of access to the hall above, in conjunction with which it was used. It could not be better used to-day than it is as an annexe to the Museum.



A FURTHER VIEW OF THE EXTERIOR OF DISCOVERED WINDOW AT THE GUILDHALL, LONDON.

We share with the city surveyor the hope he has expressed that the western crypt may be restored to something like its original form.

Some buildings which were intimately connected with the Guildhall, but have now been removed, call for a passing reference. Stow records in 1424, "Then was built the Maior's Chamber and the Counsell Chamber with other rooms above the Staires."

This, then, was the first Council Chamber. It seems to have been re-erected in 1614, and adjoined the north wall of the hall, and was used until 1777. It occupied part of the site of the present Council Chamber. The old Council Chamber, used from 1777, occupied the site of the present offices of the city surveyor. It is remembered for having been the scene of the presentation of the City's freedom to Nelson, Wellington, Brougham, Pitt, Disraeli, Livingstone, and others. To quote what was said of the chamber in 1884, "Here have been fostered and supported those great charities which are the glory and boast of this old England of ours." The inauguration of most of the great public improvements took place in this chamber.

According to a later chronicle, Guildhall chapel was erected by Richard Whittington in 1406. It says: "He also buylded for the ease of the Maior of London and his bretheren and of the worshipfull citizens at the solemne dayes of their assemblie a chapell adjoining to the Guyldhall, to the extent that they should ever before they entered into any of theyr affayres, first to go into the chapell and by prayer to call upon God for his assistaunce." This would be early in the fifteenth century, but there seems to have been a chapel as early as 1280. The building stood until 1822 on a site which is now the picture gallery. It was dedicated to St. Mary Magdalene and All Saints. The history attaching to it is interesting, especially of its keepers, chaplains, and chantries. At the great fire the roof was burnt off, and it was otherwise partially destroyed.

The three statues which are now on the staircase leading from Basinghall Street decorated the west front, and were placed in niches, as shown in our illustration, facing the Guildhall Yard. They represented Edward VI., Charles I., and his Queen. The west window, with seven lights, was perhaps the chief architectural feature of the building. When pulling down the old chapel, a massive Purbeck stone coffin was discovered next to the north-east corner, which is now preserved in the crypt. The inscription reads: "Godfrey the Trompour lies here; God have mercy on his soul"; the date about the thirteenth century. The Corporation bought the chapel and library of Edward VI. in 1550 for £456 13*s.* 4*d.* The Mayor and Aldermen attended service here until it was given over to secular uses, when it became the Court of Requests, an office, and Courts of Law. It also served as a lumber store.

Blackwell Hall, also spelt Bakkewehalle, occupied a site next to the chapel, which afterwards became the Bankruptcy Court, and is now the picture gallery. Its frontage to Guildhall Yard was 105 feet, and with a depth of 188 feet. It also fronted Basinghall Street. It dates back from 1293, and originally belonged to the Clifford family and afterwards to the Basings. It fell into the hands of the Crown, by whom it was sold to the Corporation in 1398 for £50. Opened as a cloth fair or market-place for the sale of woollen cloth, we are told that "no manner of person, foreigner or stranger, bringing woollen cloth into the city for sale, shall house, show, or sell the same at any other place within the said city or in the suburbs thereof, than at Blackwellehalle," and, further, "No person shall sell any manner of cloth at any time in the week, except between eleven of the clocke before noon on Thursday and eleven of the clocke before noon on Saturday, on pain of forfeiture of all cloth sold to the contrary hereof."

The care of this place was vested in the Drapers' Company by Henry VIII. Rebuilt in 1658, at a cost of 2,500*l.*, it was entirely destroyed at the great fire and re-erected in 1672 in form which we show in the illustration. It contains two open courts surrounded by warehouses. It was finally pulled down in 1820.

It was a happy idea that the Court of Common Council should about the year 1826 "consider it well to provide a suitable place for the reception of such antiquities relating to the City of London and suburbs as may be procured or presented to this Corporation." A start to collect was made when excavating the site of the old Post Office in St. Martin's-le-Grand, also when rebuilding London Bridge in 1841, the Royal Exchange, the formation of Queen Victoria Street, the National Safe deposit, the underground railways, and many works or other buildings with deep excavations. The antiquities recovered were housed in the ante-room of the old library. Additions of various kinds have been added from time to time. Mr. H. B. Hanbury Beaufoy presented his collections of tradesmen's tokens; Dr. F. P. Weber his coins and medals, &c.; the Watchmakers' Company show their most interesting collection of old watches and clocks, &c.

To attempt, however, to describe what the Museum contains is quite unnecessary.

London in Roman times must have been closely populated by a cultured, wealthy, and artistic people; that is to say, judging from what we find. However much we, as members of an archæological society, deplore the destruction of building of historic interest, necessitated by public improvements, we are thus able at least to see countless treasures and relics of past ages which have been unearthed, and these in a fair state of preservation. It is interesting to speculate as to how such a mixed number of articles came to be together at such depths.

Buried at varying depths of 5 to 20 feet below present levels, especially at Walbrook, suggests that the articles found were from an abandoned marsh settlement on the banks of the brook: nothing later than 350 has been found here. Some articles are found in black ashes, no doubt those of the wooden houses destroyed by fire, or even possibly the Walbrook provided a convenient tip, as we should now call it, for rubbish contractors. At any rate, the City Fathers of Roman times may have preferred this easy way of getting rid of their lumber and rubbish to that of burning it up in a destructor on the Surrey side, and so destroying all trace of it, as is the approved way of the twentieth century. Any way, we are glad to-day to be able to inspect the contents of many a Roman sanitary dustbin.

In conclusion, I would like to acknowledge my indebtedness to Mr. Lambert, the assistant-librarian, to our Chairman, and to Mr. Harradence, all of whom are the embodiment of helpfulness in such matters.

This meeting has fitly been arranged by our executive to celebrate the 500th anniversary of the erection of the Guildhall. "Domine dirige nos."

ILLUSTRATIONS.

THE BLIND SCHOOL, YORK.

THE sketch shows the Blind School at York as seen from the grounds of St. Mary's Abbey. Originally the building formed the residence of the Abbots of St. Mary's, but at the dissolution of the religious houses in 1538 Henry VIII. turned it into the Palace for the Council of the North. The first occupant under the new régime was Robert Holgate, Bishop of Llandaff, afterwards Archbishop of York. Henry himself resided here with his Queen, Catherine Howard. The next President was Francis Talbot, fifth Earl of Shrewsbury, quickly followed by the Earl of Rutland and Archbishop Young. The next President, Thomas Radcliffe, Earl of Sussex, made considerable additions to the King's Manor, as it was then called, and further additions were made by the Earl of Huntingdon and the Earl of Sheffield. The Great Council of the North, hated by the people, came to an end in 1641, and the last and greatest President, the Earl of Stafford, was executed. It underwent the siege of York in 1644, and in the reign of Charles II. became a private residence and remained so until the year of Queen Victoria's accession, when it was leased to the trustees of the Yorkshire School for the Blind. The wing on the left was probably erected by the Earl of Huntingdon, and the one on the right during the presidency of the Earl of Stafford. The walls of the older part are built of coursed limestone, probably from Tadcaster; the later wing is built of thin 2 inch red bricks, the whole being roofed with flat tiles. This drawing by "Le Quayt" was awarded a prize last month in *The Architect* Students' Sketching and Measuring Club.

PROPOSED GRAMMAR SCHOOL, PENRITH.

IN a competition held for designs for the erection of the above, out of 110 competitors the design here illustrated was placed fourth.

The building was designed facing Station Road, with a girls' playing field and gardens for horticulture in the rear. The building to be faced with local grey bricks except the base, quoins and arches, which were suggested to be faced with red sand stocks.

The caretaker's house with domestic room adjoining is placed in the south-west corner of site, with direct access from the main road. The assembly, laboratories and art room, which are common to the two departments, are placed in a central position; the hall, moreover, has the advantage of not being a thoroughfare room.

Excellent supervision has been obtained by placing the headmaster's and senior mistress's rooms on the ground floor, and the assistant masters' and mistresses' rooms on the first floor.

The cloak and changing rooms and lavatories can be used in direct conjunction with the playgrounds and playing fields, as access to the school can be cut off when desired. The design was submitted by Mr. Edward Cratney, architect.

CATHEDRAL SERIES.—ELY.—SOUTH SCREEN OF BISHOP ALCOCK'S CHAPEL FROM RETRO-CHOIR—DETAILS IN BISHOP ALCOCK'S CHAPEL.

BISHOP ALCOCK'S Chapel contains some of the most charming late detail to be found at Ely, and of this we now give illustrations.

AN exhibition of drawings and designs made by the students in the Department of Architecture at University College, London, will be held from Friday, July 21, to Saturday, July 29, inclusive. The exhibition will be opened on Friday, July 21, at 5 P.M., by Mr. Leonard Stokes, P.R.I.B.A. Persons desiring tickets of invitation for the opening ceremony should apply to the Secretary of University College. The exhibition will be open on week days from 10 A.M. to 5 P.M. on the days following the opening to July 29. Tickets of admission are not required except for the opening ceremony.

THE Architectural Association will open their annual exhibition of students' work on Friday, July 21, at 3 P.M. Mr. F. Brangwyn, A.R.A., will be the special visitor. The exhibition will close Saturday, July 29.

CONGRESS OF ARCHÆOLOGICAL SOCIETIES.

THE twenty-second Congress of Archæological Societies in union with the Society of Antiquaries of London was held at Burlington House, W., on July 5. The chair was taken by Mr. C. H. Read, LL.D., President of the Society of Antiquaries.

The congresses of this body take place annually in the first or second week of July. At present they are attended by delegates from some forty-four of the larger archæological societies in this country. Matters of moment which concern all archæological bodies are debated, and the weight of the influence of the members affects improvements in matters interesting to archæologists throughout the country in a way which could not be expected if individual societies only were concerned. A further object of the Congress is to exchange experiences as to the best method of working such societies, to prevent overlapping and doubling of work, and to print economically such literature as may be useful to all the societies in union. Among their publications are the annual Index of Archæological Transactions Report, the Transcription and Publication of Parish Registers, and the Earthworks Committee's annual report upon the condition and destruction of the ancient defensive earthworks and fortified enclosures scattered up and down the country. Among the immediate publications promised by the Congress is a large Subject-Matter Index of Archæological Papers dating from 1665 to 1890. This will form a second, or supplementary volume to the Authors' Name Index of Archæological Papers with which the name of Sir Laurence Gomme, F.S.A., is so much associated, and which was published a few years ago. The affairs of the Congress of Archæological Societies are carried on by means of a Council which is elected annually, and the Society of Antiquaries places at its disposal their premises at Burlington House, W., for the annual meeting. The Honorary Secretary is Dr. William Martin, M.A., LL.D., F.S.A., 2 Garden Court, Temple, E.C.

At the Congress last week the following report was presented for the year 1910-11:—

The number of societies affiliated to the Union still remains at forty-four.

The resolution passed at the last Congress "That the matter of the Archæological Index be referred to the Committee to consider how the Index can be produced most cheaply, and how it can best be circulated at such a price as to pay its cost, and with full powers to make arrangements," was duly considered by the Archæological Index Committee. As regards the Annual Index, the committee has decided to publish it for the year 1908 at the price of 1s. per copy to members of affiliated societies, subject to a discount of 33 per cent. to societies purchasing a quantity. In the event of the cost of production not being met by the sale of copies, the committee would recommend its discontinuance. The Council expresses the hope that all the societies in the Union will find it convenient to purchase copies of the Index when published, and thereby assist in securing continuation of this important publication. The manuscript is well advanced, its production having been promised by the compiler early in the autumn.

With respect to the large Subject-Matter Index, 1665-1890, the committee, by means of a donation of £10 from one of its members and by a grant from the Society of Antiquaries, will be enabled to purchase from Messrs. Constable & Co., Ltd., the index-slips and other papers which Messrs. Constable have prepared, and to arrange with the Honorary Secretary of the Congress for the completion of the Index. When completed, the question of printing the Index will then be considered.

The revised scheme of the Earthworks Committee for recording ancient earthworks, the preparation of which was announced in the last Earthworks Report, was distributed in November, 1910, to those societies which subscribed towards its issue. About twelve hundred copies remain in the hands of the committee. Part of this number will be used for individual distribution to inquirers. The Honorary Secretary of the Earthworks Committee, Mr. A. G. Chater, finds it necessary to resign office. As his successor, the Council has appointed Mr. Albany F. Major. As before, the report for the past year of the Earthworks Committee will be issued separately.

The resolution passed at the last Congress—"That this Congress approves the principle of Mr. Johnston's proposal (as to church restoration, &c.), and requests the Council, in conjunction with Mr. Johnston, to draw up a recommendation that may be circulated by the Congress to the Bishops"—received the attention of the Council. The Council, after considering the matter, passed the following recommendation:—"That the position of the Society of Antiquaries of London in respect of work hitherto accomplished in advising diocesan authorities on matters of church restoration should be strengthened by the grant of additional powers through 'The Ancient Monuments (England)' Royal Commission; and that the Council of the Congress of Archæological Societies of England and Wales recommends the appointment of the society as the advisory authority for England and Wales in all matters relating to the fabric, furniture, and monuments of churches."

This recommendation was duly forwarded to and acknowledged by the Royal Commission and by the Society of Antiquaries.

The resolution passed at last year's Congress—"That His Majesty's Government be respectfully asked to direct that arrangements shall be made by the authorities at Somerset House that access for literary study may be given to all documents, ecclesiastical as well as Probate records now in their charge, in the same way as at the Public Record Office"—was forwarded in due course, and a reply was received that the resolution would receive the Prime Minister's attention.

The Council records with satisfaction the appointment of a Royal Commission to inquire into and report upon the preservation and indexing of Public Records. In view of this appointment, the Council decided, as regards the resolution passed at the last Congress, concerning the desirability of increasing and expediting the issue of Public Record office volumes, that it was sufficient for the present to inform the Commission of the Council's desire to tender any assistance within its power in furtherance of the aims and objects of the Commission. The offer of assistance was duly acknowledged.

Some considerable discussion took place on the subject of Mr. P. M. Johnston's proposals as to church restoration, which are alluded to above. At the Congress of 1910 Mr. Johnston had introduced a motion expressing the cordial approval of the Congress of an arrangement in operation in the Diocese of Chichester, by which the Bishop consented to submit to an Advisory Committee appointed by the Sussex Archæological Society, before issuing a faculty, any proposals that might arise for enlarging, restoring, altering, rebuilding, or re-fitting any ancient church or chapel-of-ease within the diocese; an arrangement by which the Bishop also invited warning and advice in the case of proposed alterations of importance. He also moved a resolution that the Bishops of the other English and Welsh dioceses be formally invited by the Congress to accept the services of similar consultative committees, if formed by the local archæological societies. Mr. Johnston described the genesis and working of the committee, and mentioned cases in which it had successfully intervened. Many small alterations and refittings were, he said, often done without a faculty; but the Bishop of Chichester insisted on everything being submitted to him before a faculty was granted.

In the subsequent discussion last year it was suggested that the proposal was one unsuited for adoption, as the Bishops and the Chancellors would resent any interference with their functions, and the local architects would likewise object. As a consequence of these possible difficulties, Mr. Johnston's resolution was somewhat modified, and was finally carried as follows:—"That this Congress approves the principle of Mr. Johnston's proposal, and requests the Council, in conjunction with Mr. Johnston, to draw up a recommendation that may be circulated by the Congress to the Bishops."

At the Congress last week Mr. P. M. Johnston, F.S.A., F.R.I.B.A., again brought this matter up. He said he felt that the recommendation given above in the Council's annual report was hardly sufficient. He therefore moved a rider to it as follows:—"This Congress of Archæological Societies of England and Wales and Ireland, recognising the importance of local knowledge and influence, approves the step already taken by the Sussex Archæological Society in setting up a sub-committee to watch over the ecclesiastical antiquities and to warn the Bishop of any threatened mischief to an ancient church, and to tender advice where a faculty is applied for within the diocese of Chichester. The Society further commends this arrangement to the consideration of other archæological societies for imitation where circumstances allow. Such local action to be supplementary to the general powers sought to be obtained for the Society of Antiquaries through the Ancient Monuments Royal Commission of England and Wales." The above rider was debated and amendments proposed. These were at length withdrawn, and Mr. Johnston's rider was passed unanimously. It was generally felt, however, by the delegates that it was far better to approach the Society of Antiquaries as a court of appeal than to leave such matters in the hands of special local committees, since the Society's representations would have far more weight with the authorities than any action by local people.

THE ARCHITECTURE OF LONDON HIGHWAYS.

By "VIATOR."

TO AND THROUGH PALL MALL.

THERE is a natural temptation to head this article "Clubland"—a temptation to which surrender might be made were it not that it is necessary, in the earlier portion, to consider not only a Royal palace, but also various memorial erections, and elsewhere office blocks and noblemen's mansions are also cast on the screen; consequently the obviousness of the desired title would not have been conspicuous.

There is but little that is really ancient in this district. St. James's Palace—the building that gives its name to England's Royal Court—carries our thoughts back to the earlier years of the sixteenth century, when bluff King Hal suppressed a hospital that stood on the site and erected a Royal palace in its stead. There is an air of picturesqueness about the straggling pile, not at all increased by the sooty accumulations from the atmosphere. Though not strikingly architectural, there is yet an interest attaching to the work of Hans Holbein, the well-known portrait-painter and architect. Unpretentious as the Palace may be, it yet serves to show the superiority of unassuming brickwork over assuming stucco, the latter so much in evidence at Buckingham Palace and many other important buildings.

Before considering any of the latter, attention may be directed to some of the memorials that this district contains. Undoubtedly the finest is the equestrian statue of Charles I.; it stands now upon the site of the original Eleanor Cross, the modern copy of which we have already observed in the courtyard of the railway terminus. In the unregretted days of Puritan sway the cross was demolished, and the King's statue (erected in 1633) was taken down also during the Cromwell régime. After the Restoration the equestrian group was re-erected in its present position, though the iron enclosure of former days has disappeared. Who amongst us can fail to recognise the inappropriateness of the selected site? The heroic queen of King Edward I. to be superseded by the unheroic and ill-fated Charles I.! But setting aside this historic unseemliness, the artistic merits of the memorial must appeal to all. A fine, dignified statue of the king cast in copper (and doubtless a faithful presentment of the features and picturesque attire of the ill-starred monarch) provides a fragment of history torn from the book of records, to be set here in the public gaze, and not unpathetically directing his looks towards the place of his execution. Le Sueur's work is a masterpiece; and if he is also responsible for the stone pedestal (though this has been attributed to Grinling Gibbons) our praise of him must receive an access of fervour. Pity 'tis that the gnawing tooth of Time, the destroyer of all things, aided by the deleterious atmosphere, should have so defaced, and even effaced, the carving; but sufficient is yet left to enable us to gain an impression of the whole. Close inspection shows that the carved shields of the Royal Arms bear on quarterings the lilies of France; at that period, and for some time subsequent thereto, England asserted her dormant claims to sovereignty "over the water" by the addition of such quarterings and by the insertion in the regal title of the word "Franciæ" (Rex).

But if Le Sueur's work is a masterpiece, such cannot be said of Matthew Cotes Wyatt's bronze equestrian group of George III. in Cockspur Street. Regret is keen that Time's gnawing tooth, or some other kindly agency, could not take effect here instead of elsewhere. Attention may be directed, in passing, to the too-forward position of the group on its pedestal, with the result that the horse seems to be shying at his apparently uncomfortable insecurity.

The architecture of Simeon Stylites is an error, and no prescriptive use can justify it. In this very district there are two examples. There is no temptation to linger by the Duke of York's column overlooking the Mall in St. James's Park; let it suffice that it lacks such merits as attach to the Nelson column, and substitutes none on its own account. The Trafalgar hero memorial, however, even if monumentally silly, is architecturally good in detail. Irrespective of its purpose, William Railton's work is a fine conception. But in raising a memorial, surely the crowning effigy should be capable of close inspection by the wayfarer! The gallant Nelson! he was indeed a lion; and yet on his own monument he is skied and set uncomfortably astraddle on his lofty perch, whilst other lions are placed within easy range of vision. Certainly Sir Edwin Landseer's supporting couchant beasts may be taken as a guard of honour, and there are those who would urge that our naval hero was not one who desired to be foremost in the public gaze; assuredly, however, this was not the inspiring *motif*. Again, when we remember the connotation of the word "Corinthian" in the early years of the nineteenth century, the appropriateness of the use of this architectural order in connection with Nelson is not apparent. The statue (by E. H. Baily, R.A.) is 17 feet in height and is very theatrically posed. The bronze panels on the pedestal form, together with Landseer's lions, the most pleasing features of the memorial; nor is this the only instance where subsidiary portions take artistic precedence, another metropolitan example being the Albert Memorial in Kensington Gardens. Nelson's memorial was not completed before 1843, occupying six years in erection.

Only passing notice can be accorded to Sir Francis Chantrey's fine equestrian statue of George IV.; the King's gaze is directed towards St. James's Park, where his former residence, Carlton House, was situated. By the irony of fate it has been decreed that the sole relics of that house (some columns) have been incorporated in the portico of the National Gallery in the rear of the King's statue.

Hamo Thornycroft has produced a delightful statue of Charles George Gordon, set in the centre of Trafalgar Square. It would have been so easy for an artist to exhibit Gordon in an attitude scanning the far distant horizon, on the watch for the succour that arrived only when succour was unavailing. But pathetic as is the story of Gordon at Khartoum, the pathos would have been rendered somewhat theatrical so translated into statuary; the pensive attitude of the man of generous dreams is far more sympathetic—aye, and even more pathetic!

Sir Aston Webb's work has a quality all his own, though not always in evidence. Whereas in the completory buildings of the Victoria and Albert Museum, at South Kensington, the quality is not greatly noticeable, in the Victoria Memorial entrance buildings to the Processional Avenue of the Mall in St. James's Park, Aston Webb's afflatus is pronounced; to do justice to the building, however, further demolitions are required in Charing Cross, which would render the vista from either side much more satisfactory.

A few remarks must be devoted to Trafalgar Square itself. Admittedly a fine site, it has been decidedly maltreated and is but the grave of lost opportunities. Instead of making manifest its *raison d'être*, it has surrounded itself (or become surrounded) with buildings unworthy of such a site, though exception must be made in regard to St. Martin's Church. Sir Charles Barry, a notable architect, a man whose travels had carried him amongst the best examples of Continental art, and who knew so well how "to transmute into gold the leaden metal" of architecture, singularly failed in dealing with the Square. It is decidedly monotonous in the etymological sense, and "universal (greyness) broods o'er all." The fountains, we think, are out of place in a business centre, and silk hats suffer when the wind is in an adverse quarter. There is no life, no relief; the Square should have smaller ponds (no fountains), there should be trees, flower-beds, turf; and no advantages accruing from its adaptability for large open-air demonstrations, nor from its possessing the standard measures, can balance the lack of artistic qualities. And it should have noble thoroughfares heading away from it, and noble buildings enclosing it. But what can be said for Mr. A. Waterhouse's Grand Hotel, for Morley's Hotel, the Union Club, the College of Physicians, the National Gallery, on the palm of nobility? The last-mentioned building was opened in 1838 (nine years later than the Square), and in its original form it was the work of William Wilkins, though Sir James Pennethorne made additions in the sixties, and Mr. E. M. Barry added a wing in 1876. The one satisfactory portion externally is the noble portico. This fine feature compares (not contrasts) favourably with Wilkins's portico to University College, in Gower Street. For the rest—'tis but decadent art.

Before further reference to the Square's enclosing buildings, a few remarks may be offered in regard to the National Portrait Gallery, a really fine exterior by an architect of whose work too little is to be seen in London—we refer to the late Ewan Christian. The same qualities of Classic reserve are noticeable here as elsewhere in his buildings for the People's Palace at Mile End. The conjunction of the Portrait Gallery with the National Gallery was very happily effected, though the two buildings are differentiated in treatment. When we observe how the architect has shown a sense of right proportion, right disposal of ornament, right massing of features—adverse criticism, however slight, is out of place. This is one of the rare buildings, to which reference was made elsewhere, that satisfy the eye without arresting the step.

But the two Galleries provide an interesting object-lesson in contrasts within and without. Externally, the one impressive and dignified, the other mean to insignificance; internally the merits are transposed, for whereas the National Gallery exhibits a series of notable halls, the qualities of meanness and obscurity attach to the salons of Ewan Christian's building.

The Royal College of Physicians, occupying the northwest angle of the Square, is the work of Sir Robert Smirke, and is worthy of respectful notice. The Ionic portico facing Pall Mall East is eminently satisfactory, and the niched presentments of Linacre (founder of the College in 1523), Sydenham and Harvey give character to the institution; the completion of the western side of the Square by the premises of the Union Club merely continues in stucco the flank design of the College. That is perhaps not the correct description, for the Union Club is the quondam Cannon Coffee House (the work of Smirke), being converted into the club premises in the year 1823, at the time when the stone northern building for the Royal College was added.

The next structure that comes under notice here is the United University Club, in Pall Mall East; it is one that does not admit of cavilling, even were such the object of an architectural tour through the streets. In all Clubland there is no building to surpass, few to equal it. It may be supposed that some criticism of adverse nature may be possible under all circumstances, but even as in the case of the façades of the National Portrait Gallery the positive merits are so evident, and anything else so trifling, that such criticism would savour of impertinence. This club house is another instance of the good effect of ornamented construction as contrasted with both constructed ornament and unadorned nakedness. As in the case of the U.K. Provident Institution in the Strand, though from a different cause, Mr. Reginald Blomfield's club house gives the appearance of a highly ornate building, though the result is obtained in spite of a restrained use of ornament.

There is a very heterogeneous assemblage of façades in Charing Cross, nor do many of them require notice here. The Dominion of Canada seems to have made this central point of the world its home from home; here are congregated the offices for Canadian emigration and of the Pacific and Grand Trunk Railways. Of these we must confine attention to the last, where we find Sir Aston Webb once again in a happy mood. The façade has a curious but not unpleasant effect of being self-framed; the entire absence of columnar treatment may be noted with a sigh of relief, as we are not of the number of those who desire "toujours perdrix." The one disagreeable note struck in an otherwise harmonious piece is the interpenetration of arch labels and panel mouldings. The adjoining premises to the west are the offices of the Hamburg-American Line, in which we recognise thoughtful work and a refined taste; but as in some other buildings to be met with (mention was made of Temple Bar restaurant in a previous article), the heavy contrast between Labradite ground storey and white or cream stone superstructure is too pronounced; the coupled Ionic columns to the latter help towards counterbalancing this effect.

Here we must pause to enter a protest against the cult of the New Art as exemplified in neo-English architecture—the twentieth-century style, which is no style, but an agglomeration of unpleasant vagaries. Examples there are in more than sufficient number, and here we are confronted by one in "Oceanic House," and Piccadilly, Oxford Street, and Holborn furnish further instances. The columns to "Oceanic House" are pleasing, but that once conceded no more is left to concede to a building which seems to have no beginning and no end. Arrived at Pall Mall, the first building demanding attention is the Carlton Hotel, with the conjoined theatre situated in Haymarket. Mr. C. J. Phipps originated the design for the complete block and superintended the erection of the theatre, but dying ere the hotel was far advanced, the work was entrusted to Messrs. Isaacs & Florence, who made considerable alterations in the plans, though the elevational treatment was probably not greatly varied. And this is to be regretted, for it can never be a canon of art to make of an hotel a mere completory design to an existing theatre. The architecture is respectable, nothing more; but even for this we may be thankful.

Seymour House, situated at the north-western junction of Pall Mall and Waterloo Place, is a building fully worthy of laudatory notice. Mr. Arthur Thompson, the architect, has produced a good Italian Renaissance design * with a modern freedom in parts, fully justifiable in itself and fully justified by the result. The window pediments to the first floor are a bit oversteep for the best effect, however, and the building suffers to an extent from the western wing being not yet built; but that is no fault of the architect's, we may be sure. The keystone cappings to ground-storey windows are worthy of notice. The coupled columns to the entrances do not look well; single columns of increased diameter would have been a great improvement, and without the square blocks to the shafts; the rough-axed treatment to the basement windows is very effective.

Clubland is now reached, and we will first refer to the New Oxford and Cambridge at the extreme south-west, so as to dispose once for all of the nauseating façade. What architect was responsible we neither know nor care, but that such work was to come next door to Wren's might almost make one credit Sir Christopher with the foresight to set his mansion for the Duke of Marlborough as far back as possible in order to provide against future contact. There is no rest for the eye from base to crown, no sense of proportion in whole or in part—a veritable example of constructed decoration—and with this, *Vale*!

Most of the club houses are situated on the south side of Pall Mall, towards St. James's Park, and vary in their architectural as in their political and other features; but there is a directness of purpose in most of them, that is a pleasant phase of union. It cannot be pretended that Decimus Burton produced a building of any external value in the United Service Club; but stucco has a very depressing effect and reacts most unfavourably on architectural compositions. However, the Athenæum by the same architect and opposite to the United Service is a great improvement, nor does it suffer from having as a neighbour on the north side the fine block of Seymour House described above. But this may be variously accounted for; perhaps it is due to the pleasing proportions (by no means spoilt by the addition of an extra storey in recent years, for this was set well back behind the balustrade); perhaps the figure of Pallas Athene or the replica of the Panathenaic frieze of the Parthenon, or the unusual and interesting boundary walling are accountable—but the interest of the building is undoubted. The toned background to the frieze, a subdued amber, is very effective, and contrasts favourably with the treatment accorded on the façade of the Oxford and Cambridge Universities Club near the western end of Pall Mall; this also is in the stucco so much favoured in past years, and on this façade is a series of mezzo-relievo figure panels with a background of very blueish grey, giving a most crude effect. The portico of the latter club is very commonplace, and the ground storey windows mean; the brothers Smirke were the architects. They also are associated with the Carlton Club, the original building being the work of Sir Robert, and the existing one being by Sydney Smirke, contemporary in erection with the duration of the Crimean struggle. We may suitably consider the Senior and Junior Carlton Clubs simultaneously, as there is a general effect of as close kinship in the architecture as in the political colour; but there the likeness and any appropriateness of simile ends, for whereas with advance of years political exuberance tones down into a sobriety unknown to youth, in these two buildings we perceive a reverse architectural effect. The design of the Senior Club is based on Sansovino's library of St. Mark at Venice. Its main frieze is too ornate, nor is this effect counterbalanced by a sufficiently solid-looking balustrade over. But the whole façade of this club is less restful than the Junior; when regarding the latter building, it will be found that the St. James's Square façade is a finer work of art than the Pall Mall main front. This building was the work of David Brandon in 1866, with a western wing added by Mr. J. Macvicar Anderson in 1885-6; the latter architect repeated on the main front the one-storey shallow bay existing at the eastern end, and on the St. James's Square façade treated it as a two-storey bay, and these features impart a pleasing relief, which is very far removed from the restlessness of the Carlton.

But though both these buildings are real works of architecture, probably most architects will give the palm to the Reform Club which was the work of Sir Charles Barry (1837-40), who modelled it after the design of Sangallo Junior's Palazzo Farnese at Rome. At that period a fashion was in vogue to bring Italy to England, with a want of appropriateness at times that evinced a regrettable lack of the humorous sense and of the exercise of the divine art of design on the part of the various architects concerned. In Pall Mall itself attention may be directed to four such lapses (the Athenæum does not come under this category). There are the Carlton and Reform Clubs, of which mention has been made above; the Travellers, also by Sir Charles Barry (1830-2), based on Raphael's Palazzo Pandolfini and over which there is no inducement to linger; and there is the Army and Navy Club by Messrs. Parnell & Smith, based on Sangallo Junior's Palazzo Cornaro at Venice: in all these cases there is little desire to advance criticisms here, as the designs were not the work of the various architects engaged for the buildings.

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* *The Architect*, March 11, 1904.

Of the other club houses in this thoroughfare, only two demand notice in this article—(1) the Marlborough, for its quiet domestic appearance of an Elizabethan cast, and the pleasant relief thus afforded from the Italian Renaissance so prevalent in the neighbourhood; (2) the Royal Automobile Club premises now in course of erection, but sufficiently advanced for the present purpose. The use of the colossal order necessarily has a dwarfing effect upon the storeys of a building, but after noting this, the appearance of the club is worthy of all praise, and the public may be congratulated on the substitution of this building for the miscellany of old premises that erstwhile housed the War Office. In regard to the carved ornament to the newest club-house façade, it is neither sparse nor excessive and there is a pleasing freedom in treatment far removed from straining after originality, and at the same time providing an interesting variation on the academic design so generally in evidence. A criticism may however be advanced at this place; whilst the representation of smoke, flames and jagged lightnings may be presumably typical of the disturbing elements associated with automobilism, where is the *raison d'être* of agricultural implements? for assuredly, speed limit reached or ignored, motorists cannot heed the country through which they pass; and, "when Adam delved and Eve span," where was then the motorman? The top balustrading of the club compares favourably with others, a stouter baluster being used; it needs bearing in mind that a baluster, as seen close to the eye, however satisfactory, becomes in appearance thin when raised to a height, and therefore it must be exaggerated in contour in order to look well at a distance.

As a general matter of observation, the back front of a building is less architectural than the main façade, but here in Pall Mall there are at least three exceptions. To one of these attention has already been drawn, namely, the Junior Carlton Club; another is a building by the late Professor George Aitchison, built in 1884 for the Royal Exchange Assurance Company, and situated next the above club house. The red gauged, rubbed and carved brick façade to St. James's Square is full of delicacy and interesting detail, though the Pall Mall front is also not without its good points; the entrance to the latter is worthy notice, and the carved representation of the Royal Exchange redeems to an extent what is an otherwise poor gable.

The third exception to the rule referred to a few lines earlier are the premises designed by Mr. Alfred Williams for Wilkinson's Sword Company[*] and now occupied by the Daimler Motor Company. In this case the two façades are of equal architectural value, repeating one the other with but slight modifications, and these to an extent resulting from the exigencies of the plan. The chief distinction not so resulting, but introduced so as to differentiate between back and front, is the substitution (in the upper storeys of the former) of red brick filling for the rusticated stone courses of the main façade. The central arched windows to ground storey on both faces are eminently satisfying, and the massing throughout is good; the one disturbing element on both façades is the loggia near the top, seeming in effect to wrench away the roof and its dormers from the substructure.

The last of the Pall Mall frontages to be considered are the offices of the London and Lancashire Fire Assurance Company, designed by Mr. E. Guy Dawber; this building has a somewhat elusive right of comparison with the Daimler premises described just above, but to the advantage of Mr. Dawber's façade throughout; there is the semicircular arching in each ground storey, the well-projected cornice to each, with loggia over, and there is the tripartite frontage in each case. But the differences are certainly as great as the points of likeness. Mr. Dawber's loggia treatment is guilty of no such violent effects as are Mr. Williams's, and the central lantern on the insurance building is a great improvement upon the central gable of the other. It is perhaps a trifle, but yet it is interesting to note the lesser height of the central arch of ground storey in Mr. Dawber's building, being the entrance to a foot thoroughfare of meagre dimensions, and thus suitably dealt with in the design.

The next buildings demanding notice bring within our ken the most interesting of living architects, Mr. R. Norman Shaw, and this opportunity may be taken for correcting an error of which the article on the Strand was guilty; for on reliable authority (not Mr. Shaw's own, however, be it understood), we have been informed that the external design for the offices of the Government of Victoria (Australia) is the work of this eminent architect in all its main features, and to this extent it is necessary to revise what was said in the earlier article. Here, at the corner of Pall Mall and St. James's Street, is a building erected several years ago by Mr. Norman Shaw for the Alliance British and Foreign Life and Fire Assurance Company; the ground storey arching here is entirely satisfactory, not lacking the sense of right proportion such as was observed in the Victorian offices. The bold gables and angle turret, the well-disposed carving, the distribution of stone bands over the red brick façades all combine to produce a fine office block, that at the date of its erection did not have so many worthy companions as at the present day. On the opposite side of the street are the more recent offices of the Alliance Assurance Company, the joint work of Mr. Norman Shaw and Mr. Ernest Newton; it is good work, but not as pleasing as the earlier building; the pulvinated rustication, which is a feature growing in favour, is not to be commended; it gives an air of softness where there should be nothing but strength. The iron balcony fronts are good, and masses are well judged. Mr. Frank T. Verity's block of mansions in Cleveland Row compares well with the last-named building, and is very fitted for its purpose, so far as the design can express it; there is a suggestion of similar ideas bearing influence in both buildings, though this is doubtless accidental.

At the commencement of this article some remarks were offered respecting St. James's Palace, and at this place it will be convenient to refer to some of the private mansions situated within and near its precincts. Of Stafford House but few words are necessary; it was built by George III.'s second son, the Duke of York, on Crown land, at a cost of 72,000*l*., with money lent by the Marquis of Stafford, the architect being Benjamin Wyatt. The Duke died before the house was ready for occupation, and the Crown lease was subsequently sold (in the year 1841) to the Marquis for the amount of the above loan. Sir Charles Barry added the upper storey, and was architect for much of the interior; architects will have an opportunity later on in the year of inspecting this nobleman's palace, on the occasion of the Town-Planning Congress—an opportunity that has not occurred since the International Congress of Architects held in London four years ago. The exterior of the house is not at all architectural, and we need not linger over it, nor over Clarence House just opposite, built for the Duke of Clarence, afterwards William IV.

When we turn to Bridgewater House, we are confronted by a thoroughly fine specimen of architecture, the work of Sir Charles Barry in 1849. It has a family connection with Stafford House, for Lord Francis Egerton (second son of the Marquis of Stafford and created Earl of Ellesmere) was great-nephew and heir to the Duke of Bridgewater, who left his valuable collection of pictures to his nephew the Marquis of Stafford (first Duke of Sutherland), with remainder to Lord Francis. On the death of the Duke of Sutherland, the new owner of the pictures had the present Bridgewater House rebuilt on the site of what was once known as Berkshire House, afterwards as Cleveland House, and then as Bridgewater House, built by the first Duke of Bridgewater in 1730. Barry's mansion is a palatial pile, within and without, and is almost beyond criticism of an adverse nature; this also will be available for inspection in the autumn; we went over both Bridgewater House and Stafford House four years ago and hope to renew acquaintance this year. The lintels to first floor windows have an unusual decoration in the form of a motto "Sic donec" in the centre of each. The forceful chiselled lettering over the portico "Restitute Anno Domini MDCCCXLIX," is worth attention; the alternate plain and vermiculated drums of the columns to the portico are also effective.

Spencer House is not possessed of any specially attractive external features. It was built in the fourth quarter of the eighteenth century, John Vardy being architect for the Green Park façade, and James Stuart (of Grecian fame) for the entrance front in St. James's Place. The statues on the pediment, where one is accustomed to see modest acroteria, were the work of M. H. Spang; the ground storey park façade is arched and rusticated, and there is a superstructure with Doric order, and a frieze showing in alternate metopæ the absurd bucrania or ox-skulls; but as there is no inducement to linger over the description of an uninteresting building, we will here stay our wearied pen.

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[*] *The Architect*, Feb. 26 and March 4, 1904.

REFORM OF BUILDING BYE-LAWS.

THE Council of the Rural District Councils Association in their annual report refer to the draft Public Health (Building Bye-Laws) Bill as follows:—

The Council considered this Bill submitted to them by the Building Bye-laws Reform Association in pursuance of the Conference between the representatives of that Association and a Sub-Committee of the Council held on January 20, 1909.

The Council were of opinion that Clause 2 of the Bill, in so far as it proposed to enable the County Court to order the plan to be approved without modification or subject to any modification specified in such Order or to make such other Order as the Court shall think just, went beyond the agreement come to with the representatives of the Building Bye-Laws Reform Association, which merely contemplated a right of appeal to the County Court on the question of whether or not the plan complied with the bye-laws, and was merely intended to substitute the less expensive procedure of appeal to the County Court for the present procedure by *mandamus* to the High Court.

They ultimately decided that provided Clause 2 of the Bill was altered to confine the appeal to the question of whether or not the plan as submitted complied with the bye-laws, that the Bill would substantially carry out the arrangements come to at the Conference between the representatives of the two Associations on January 20, 1909, and a communication to this effect was addressed to the Secretary of the Building Bye-Laws Reform Association.

TOWN PLANNING.*

I FEEL it a great honour to have been asked to address this Conference of Rural District Councils on this subject, as it is one which I think the delegates present will have more to do with than almost anybody.

The recent Census statistics reveal the existence of a strong tendency for population to shift away from busy centres to more rural surroundings outside, where it is possible for a man after his day of toil to recuperate amidst pleasant surroundings, and where his family can have permanent enjoyment of cleaner air and more spacious quarters. The result of this growing tendency must be the gradual spreading of our towns, so that our rural districts will become urbanised. In the process the towns must either enlarge their boundaries to the detriment of the rural districts, or the Rural District Councils must provide the amenities, convenience, and sanitary conditions necessary for a town population, and co-operate with the towns which they adjoin in anticipating future development.

Having this in mind, one feels that the Town Planning Act was passed in order to benefit rural districts almost more than any other form of district or borough. The weakest part of the Act is that it hardly provides enough machinery for rectifying existing wrongs, but this weakness will be least felt in rural districts, because in most of these the greatest development is yet to come.

That the development as it comes should be on right lines is of the greatest economical importance to the district, and within the Town Planning Act will be found considerable powers to make this possible.

We have heard a great deal of the social, moral and physical benefits to be derived from town planning, and they are indeed important, but reformers have been rather apt to overlook their biggest asset, viz., the great economical advantages attached to it.

The average ratepayer, and he is after all the party of principal importance as matters stand, will let you talk of the first three assets until you are blue in the face, and it is not until he hears that number four is sound that he will begin to take notice.

Finance is the ruling factor, and in our brief examination of the possibilities opened up by the Act, that is the thing we must bear most closely in mind.

Probably we are all agreed as to the desirability of town planning—we have all seen too much of the disastrous results of the haphazard planning of our towns not to be impressed with the wisdom of exercising wise foresight, now that the Town Planning Act has made such a course possible, and provided that the Act has placed such powers within our means financially.

In urban districts, and many rural districts in which there are urban developments, one has so often seen good property spoilt by the bad development of adjoining estates, and good property spoilt, as we all know, means loss to the rates. Again, we all know the heavy sums that have been spent on street improvements, which a very little wise foresight might have avoided, and it is well for us to remember that the urban problems of to-day are the rural problems of to-morrow.

The responsibilities of the rural district are, indeed, perhaps even greater than the urban, as she is the mother of many parishes that will themselves some day burst into urban powers, and it should be a matter of maternal pride to see that the days of their maturity are not marred because of a bad upbringing.

The Act itself we are all pretty familiar with, but one may perhaps briefly recapitulate its main town planning provisions.

The gist of the matter is in the first section of Part II.:—

"54 (1) A town planning scheme may be made in accordance with the provisions of this part of this Act as respects any land which is in course of development, or appears likely to be used for building purposes, with the general object of securing proper sanitary conditions, amenity, and convenience in connection with the laying-out and use of the land, and of any neighbouring lands."

"(2) The Local Government Board may authorise a local authority within the meaning of this part of this Act to prepare such a town planning scheme with reference to any land within or in the neighbourhood of their area, if the authority satisfy the Board that there is a *prima facie* case for making such a scheme, or may authorise a local authority to adopt, with or without any modifications, any such scheme, proposed by all or any of the owners of any land with respect to which the local authority might themselves have been authorised to prepare a scheme."

In order that there may be no fatal finality, it is also provided by Sub-section 6, "A town planning scheme may be varied or revoked by a subsequent scheme prepared or adopted and approved in accordance with this part of this Act, and the Local Government Board on the application of the responsible authority, or of any other person appearing to them to be interested, may by order revoke a town planning scheme if they think that under the special circumstances of the case the scheme should be so revoked."

Also, in order that schemes may be comprehensive, and not divided by purely parochial boundaries, we have the following valuable provision:—

"55 (3) Where land included in a town planning scheme is in the area of more than one local authority, or is in the area of a local authority by whom the scheme was not prepared, the responsible authority may be one of those local authorities, or for certain purposes of the scheme one local authority, and for certain purposes another local authority, or a joint body constituted specially for the purpose by the scheme, and all necessary provisions may be made by the scheme for constituting the joint body and giving them the necessary powers and duties."

An authority may, without compensation, insert provisions in a scheme, which with a view to securing the amenity of the area included in the scheme or any part thereof, prescribe the space about buildings or limit the number of buildings to be erected, or prescribe the height or character of buildings, and which the Local Government Board, having regard to the nature and situation of the land affected by the provisions, consider reasonable for the purpose.

Also, no compensation is payable in respect of any provisions which would have been enforceable if they had been contained in bye-laws made by the local authority.

With regard to this, one must recognise the wisdom of Liverpool, which has in its own bye-laws a provision that for main thoroughfares 80 feet roads may be insisted on.

And most important of all, directly application has been made, after proper notice for authority to prepare a scheme, no compensation is payable on account of any building subsequently erected, or contract entered into with regard to land included in the scheme.

As we know the local authorities who must deal with this matter are "The Council of any borough or urban or rural district," their expenses shall be defrayed as expenses under the Public Health Acts.

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* A Paper read by Mr. G. L. Pepler, F.S.I., at a meeting of Rural District Councils of England and Wales at the Guildhall, London, July 6 and 7.

The matters that may be dealt with in a Town Planning scheme are set out in the Fourth Schedule, and the principal ones are as follows:—

1. Streets, roads, and other ways, and stopping up or diversion of existing highways.
2. Buildings, structures, and erections.
3. Open spaces, private and public.
4. The preservation of objects of historical interest or natural beauty.
5. Sewerage, drainage, and sewage disposal.
6. Lighting.
7. Water supply.
8. Ancillary or consequential works.
9. Extinction or variation of private rights of way and other easements.
10. Dealing with or disposal of land acquired by the responsible authority or by a local authority.
11. Power of entry and inspection.
12. Power of the responsible authority to remove, alter, or demolish any obstructive work.
13. Power of the responsible authority to make agreements with owners, and of owners to make agreements with one another.
14. Power of the responsible authority or a local authority to accept any money or property for the furtherance of the object of any town planning scheme, and provision for regulating the administration of any such money or property, and for the exemption of any assurance with respect to money or property so accepted from enrolment under the Mortmain and Charitable Uses Act, 1888.
15. Application with the necessary modifications and adaptations of statutory enactments.
16. Carrying out and supplementing the provisions of this Act for enforcing schemes.
17. Limitation of time for operation of scheme.

Having regard to the savings that we all know can be effected in these matters if they can be provided for ahead and not made to fit in when development is completed, and considering that as against any possible compensation may be set "betterment," of which the Authority takes half, I think it is quite clear that to town plan a growing area should in most cases cost little more than that paid for the actual technical work. There is also no doubt that the ultimate saving to the Authority, apart from added amenity and preservation of rateable value, will be considerable.

The Act makes very ample provision for conferences with owners, and as it is so important to large owners that some general scheme should be arranged, it is probable that in many cases the initiative will come from them; or, as at Ruislip, the fact of the development of a large estate being contemplated, will perforce make the Authority consider town planning in order that proper through communications may be provided.

It is quite easy to make most large landowners see that it is to their interest that main roads through their property should be wide, and in nearly all such cases, I think, the land will be willingly given. The difficulty will be where there are a number of small owners to whom a wide road is not of much advantage, but even in these cases expenses can be avoided if only the problem be tackled in good time.

The Local Government Board Regulations are a further incitement to speed. They provide such careful safeguards so that no interest may be ignored or overlooked, and of necessity the observance of these safeguards must take so long, that it is clearer than ever that a start should be made at once.

These regulations have met with some objection, but if one studies them closely and takes them consecutively, it becomes apparent that first appearances are deceptive, and the task not nearly so formidable as appeared at first sight, although there is room for simplification. Probably in the course of time the Local Government Board may see its way to simplify the procedure. If this can be effected in the first stage, no doubt it will lead to greater activity on the part of small authorities. There are sufficient safeguards in the second stage to make it quite feasible, without injuring the interest of owners, to reduce the procedure in the first stage to the absolute minimum required by the Act.

The Town Planning Review of April this year contained a very clear sample application under the Act, with the necessary maps, and makes the procedure most easy to follow. I have personally prepared a case for the owners of an estate at Middleton, and with the very kind co-operation of the Town Clerk and Surveyor, we have reached the application stage without any very soul-stirring or harassing episodes.

I imagine that in rural districts the cost of preparing a scheme would be apportioned among the parishes concerned, and one knows that a very little expenditure makes 1*d.* rate, but it is only a very little expenditure that need be necessary.

The Local Government Board have made it clear that great detail is not essential; seven maps are certainly ultimately required, but they need not be very formidable productions.

Map 1 is only an ordnance map with the area to be planned coloured on; in map 2, which accompanies the application to the Board, one need only show the most general outlines of direction of any proposed routes for roads, on the 2,500 ordnance.

Map No. 3 is again a coloured ordnance map only.

These are all the maps that need accompany the application, and the later maps are amplifications of these made clear as the matter proceeds.

Map No. 1 should at least include all the area likely to be wanted for building during the next twenty or thirty years, and it is of the utmost importance that this should be prepared at once and the necessary notices served, because after that two months at least must elapse before application can be made to the Board.

During this two months, or more, further attention can be given to Map No. 2, and it is important for this map that the Surveyor should have a pretty complete general idea of the main lines of the scheme; the more detailed lay out will no doubt be evolved and amended as the enquiry proceeds.

The problems to be faced will require most careful study and attention, but once a scheme has been evolved, the authority and its officials will have their reward in being prepared whate'er betide, and in not being at the mercy of every small estate developer who in the ordinary course can force on them his plans as long as they comply with the bye-laws, however undesirable they may be, and whatever seeds of future trouble they may contain.

All Town Planning Authorities should have their Town Planning Committees, and as I have heard of appointed committees who hardly knew on what to begin, I have ventured to compile the following suggestions as to matters to which they might immediately turn their attention:—

1. The first thing I should suggest, as it appeals to the ratepayers' point of view, is that the committee should consider what good property in the district is threatened by bad development in the proximity, and the best way generally in which good development can be encouraged and existing good development preserved. An illustration of this: The Croydon Corporation recently acquired a strip of land to beautify a road, not on account of the estate from which the strip was taken, but in order to prevent depreciation of property beyond. Several thousands of pounds were spent there, which would have been greatly reduced if the Act had been then in force and action had been taken under it.

2. To bring the plan of the district up-to-date, marking on the new roads finished or commenced.

3. Review the plans deposited but not approved, and also plans approved but not yet carried out, to see if there is not urgency to apply for powers in order to check undesirable development.

4. To consider the question of intercommunication with other districts, and whether a joint conference is desirable.

5. To consider the trend of development, the land likely to be next developed, and the desirable way in which it should be developed.

6. To consider the needs of intercommunication, and also as to road improvements that might not now be too expensive under the new powers the Act gives as to betterment, &c.

7. In some places it might be of great value to have traffic charts prepared, in order to show the trend of traffic, and if any relief roads had already been constructed in the district, to consider whether they had answered their purpose.

8. The very important question of open spaces: to see how far existing ones answer their purpose, and what are likely to be required in the future, and whether combination with an adjoining authority might not be desirable in this matter. Also to note any places of historic interest.

9. To consider on what lines the development of the district has so far proceeded, and as to what areas can therefore most easily be retained and improved for various classes of property.

10. To consider whether the assistance of the Road Board might not reasonably be requested.

11. To study present bye-laws, and see whether in some respects they might not be reasonably amended to make cheaper the construction of some types of roads and houses.

As to the methods of planning, it is difficult to generalise, as each district must be treated on its own merits, according to its climate, contours, and customs.

On the Continent they seem ever to be at one extreme or the other; first they were all for formal planning, now they are mostly for informal. First the grass-bordered ring-road was the thing, now it is the turn of the parkland wedge.

It is to be hoped that in this country we shall avoid these extremes, and that having Continental experience to draw upon, we shall steer an even course, judging each case on its merits, and not identifying ourselves entirely with any school except those of common sense and high ideal.

Certainly in rural districts one would expect to find mostly an informal type of plan, and not one of broad, straight streets laid out to a geometrical pattern, and this should certainly be so in districts where the ground is very undulating.

On the other hand, in growing centres of population, and where levels assist, the formal type of plan may be the best, having regard to the growth that is likely, and to the shopping centres and municipal buildings that will be required.

Two possibilities should ever be borne in mind: (1) the arrangement of a good approach to the railway station and the linking up of roads thereto; (2) the reservation of land in a good position for important buildings likely to be wanted in the future, such as town hall, baths, assembly rooms, &c. You have only got to go to Cardiff to see what a magnificent opportunity these buildings afford if properly grouped and with sufficient space. Other simple rules are (*a*) preserve all trees, water-courses and walks thereby, and fine old buildings that you can; (*b*) in arranging the allotment of areas for buildings of various characters, place those likely to create smells as far as possible to leeward of your district, having regard to prevailing winds.

As regards some portions of the area, it may not be advisable to do more than include regulations as to the character of the buildings and the number to the acre that should be allowed.

In a town planning scheme, a uniform width of road is undesirable, and in this, and possibly in some amendment of building bye-laws, with reference, say, to heights of rooms, an opening may be found for concessions to owners which will cause them more readily to fall in with the general scheme as it affects their lands.

With increasing road traffic, the tendency will be to form first-class highways to attract fast vehicles, and to which residential property will not be faced, but will be placed on subsidiary roads which are purposely arranged to discourage use of them by fast through traffic.

One could go on almost indefinitely discussing the many points that one constantly meets in dealing with this most interesting and important subject, but perhaps I have said enough to draw fresh attention to the matter as it affects rural districts.

There are many rural districts that, while still rural in character as well as in name, are bound to be invaded in the near future by the outward thrust of population from the large towns, and it is therefore of paramount importance that the local authorities of those districts should avail themselves without delay of the opportunity offered by the Housing, Town Planning, &c., Act to lay down such a plan as will not only prevent undesirable development by the jerry builder, but will ensure that the existing amenities of the district shall as far as possible be preserved.

Prevention is better than cure, and to the rural districts more than any other body the better course is open.

STAINED GLASS IN A JEWISH SYNAGOGUE.

A COMMENCEMENT has recently been made to decorate the Hammersmith and West Kensington Synagogue, situated on Brook Green, with stained-glass windows, in accordance with a scheme of design which is being prepared by Mr. Percy L. Marks, architect, of Imperial Buildings, Ludgate Circus. The ritual objection existing amongst orthodox Jews to the decorative introduction of the human figure necessitates specialised treatment. For the six windows at present in position four designs have been employed. The largest window (a lunette of nearly six feet radius, situated at the East end over the Ark) represents the giving of the Ten Commandments; the treatment shows the two tables of stone (bearing in Hebrew characters the introductory words of the several commandments) issuing from a thunder-cloud, which overspreads a brilliant dawn, which, with the half-risen sun, indicate the early hour when the solemn function is supposed to have taken place. Two pairs of narrow lights (one being in petto and one pair being much larger) illustrate the verse "The righteous shall flourish like the palm-tree, He shall grow like a cedar in Lebanon," the palm-tree and the cedar each severally appearing in a long and a short window. The sixth window of the series is a memorial to the late Minister of the congregation, the Rev. S. Alfred Adler; the upper light exhibits an eagle in proper colours on a lofty peak, with wings extended in the action of imminent flight; in small spandril medallions are shown the priestly hands in the attitude of benediction, indicative of the fact that Mr. Adler was of the tribe of priests. The sub-transome light shows a geometrical design in harmonious colouring, four intersecting circles being enclosed in one large circle, the spandril spaces showing severally the roses of York and Lancaster and the shamrock and thistle, the idea being to symbolise brotherhood and patriotism. A suitable Hebrew verse (Is. xl. 8) and an English memorial inscription complete the design. Messrs. Campbell & Christmas, of St. Oswald's Studios, West Brompton, executed all these windows under the direct supervision of the architect.

LIABILITY OF PROMOTERS OF A COMPETITION.

AN interesting case arising out of a proposed competition for designs for a parish church hall at Kendal, against the conditions of which the local architects protested, came up for consideration on Tuesday, July 11, by a King's Bench Divisional Court consisting of Mr. Justice Bray and Mr. Justice Bankes. The matter came before their lordships upon an appeal by Mr. John Stalker, jun., a young architect whose father was amongst those who protested against the proposed conditions. When the competition was withdrawn, however, Mr. Stalker, jun., brought an action against Lafone and others for breach of contract. The Kendal County Court Judge entered judgment for defendants with costs, and against this Mr. Stalker, jun., now appealed.

Mr. McCleary, for the appellant plaintiff, stated that the defendants were a committee appointed to carry out the purchase of a site and approve plans for the purposes of a parish church hall at Kendal, and this committee inserted an advertisement in a Westmoreland paper in the following terms:—

"The Committee invite architects practising in Kendal to submit competitive designs, together with written descriptions and estimates, for the erection of a Church Hall on the glebe land.

"A premium of £10 is offered for the design considered by the committee first in order of merit, and a prize of £5 for that considered second. Such designs, on payment of the premiums, shall become the absolute property of the Committee."

"All designs to be sent in not later than March 31, 1911."

By the conditions of the competition which were sent out later to the architects, the Committee did not bind themselves to employ for carrying out the work the architect who got the first prize, but stated it as their intention to do so. Further, they announced that the designs of all competitors would be on exhibition after the award for one week.

Plaintiff at once set about preparing plans, and did about three weeks' work. Then he was surprised to see another advertisement saying that the competition would not be held owing to a protest received from the architects practising in Kendal.

It appeared that during this time some architects did not think it was going to be a very fair competition, and they drew up the following protest:—

"We should point out to the Committee that the conditions sent to us neither form the basis of a fair competition nor present any guarantee of impartial assessment of the designs by a qualified assessor; also the particulars furnished are insufficient and the premiums inadequate and out of proportion to the amount of labour and expense entailed."

In consequence of that the competition was withdrawn and the work was given to a gentleman who had signed the protest and who was also a churchwarden. Mr. Stalker, however, had received no notice of the meeting at which the protest was passed. The advertisement was a public offer, and plaintiff, by commencing work, accepted that offer. Therefore there was a binding contract to hold the competition and give Mr. Stalker, jun., an opportunity of displaying his designs and perhaps winning one of the prizes. If the Committee withdrew the competition they were liable in damages, Counsel submitted.

The notes of the proceedings at the County Court were then read, and from these it appeared that Mr. Stalker, jun., worked in his father's office, and that the conditions of the competition were not sent to himself direct, but to his father.

The County Court Judge, in giving judgment for the defendants, said that the damages were far too remote.

Mr. Justice Bray: The County Court Judge, I see, has found that Mr. Stalker, jun., was not an architect practising at Kendal. If that was so, there was no contract.

Mr. McCleary contended that there was no ground for any such finding.

Mr. Justice Bray: I don't know. Plaintiff, in his evidence, said, "I am assistant to my father."

Mr. McCleary: In addition to that he says, "I have made plans for a house and other buildings, and have competed in competitions. I gave particulars of the work he had done to another architect practising at Windermere, and I called and I asked that gentleman, Would you describe him as an architect?" He replied, "Yes."

Mr. Justice Bankes: But the Judge did not accept that.

Mr. McCleary: The evidence was that he had practised in Johannesburg, and done architect's work in Kendal at the same time as he was assisting his father.

Without calling on Counsel for the other side, the Court dismissed the appeal.

Mr. Justice Bray, in giving judgment, said the offer alleged in this case was one made to architects practising in Kendal. The question of whether Mr. Stalker, jun., was an architect practising at Kendal was a question of fact, and the County Court Judge had found it against the plaintiff. He had found in effect that there was no offer to the plaintiff. In his Lordship's opinion there was no evidence before the County Court Judge which compelled him to find in favour of the plaintiff. He had found in favour of the defendants, and consequently the plaintiff's appeal must fail.

Mr. Justice Bankes agreed.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

SECOND REPORT OF THE JOINT COMMITTEE ON REINFORCED CONCRETE.

THE Joint Committee on Reinforced Concrete have now completed their second report, and it will shortly be on sale at the Royal Institute of British Architects.

In an introductory note the Committee state that since the issue of the first report in 1907 the use and knowledge of reinforced concrete for architectural and engineering constructions have steadily increased. It therefore appeared desirable that it should be reconsidered in the light of further experience, and this second report is the result of the committee's labours. The section on materials has been modified in certain details. The section on methods of calculation has been recast in form, and the standard notation (proposed by the Concrete Institute) has been adopted. The sub-section on columns has been revised and the formulæ proposed have been re-cast, so as to include the cases in which the lateral or helical binding is a material factor in the strength. The suggestions which have been made from time to time by institutions and individuals have been of much value, and have been fully considered.

Professor Unwin, F.R.S., Captain J. Gibson Fleming, R.E., and Messrs. Wm. Dunn and E. Fiander Etchells contribute appendices. The size of page has been reduced for convenience of handling, and the work will be issued in stiff covers at the price of 1*s*.

OUR CONTEMPORARIES FROM OVERSEAS.

THE *American Architect* (New York) contains reproductions of plans, working drawings and photographs of the Rockland County Trust Company's offices at Nyack, New York, Mr. Donn Barber, architect; the R. A. Long building, a skyscraper at Kansas City; and a school building at Walkerville, Ontario.

The *Architectural Record* (New York) for this month is a "Southern Number," and contains articles on the Old and the New South, in which early and modern architecture are compared; on the Southern colleges in the series on the Architecture of American Colleges; and also an article on Old and New Orleans, with reference to the picturesque buildings of the French and Spanish régime.

Engineering Record (New York) contains an account a Japanese test of a reinforced concrete floor panel by t city engineer of Yokohama, and an abstract of a paper l Mr. George C. Whipple read before the American Wate Works Association on "Hot-water Troubles."

Arkitektur og Dekorativ Kunst (Christiania) contains a illustrated article on the exhibition to be held next year o the island of Hovedoen.

La Construction Moderne (Paris) gives illustrations an descriptions of the *Foyer de la jeune fille* at Nancy, a host for young women. There is also an article on the Templ of the Sun at Baalbec, making comparison between it an Egyptian temples.

Deutsche Bauzeitung (Berlin) is publishing a series articles on crematoria, and now deals with that at Dessa and the columbarium in the Gericht-strasse at Berlin. Con petition designs are illustrated for a new central railwa station at Stuttgart and for a bridge over the Moselle a Treves.

Moderne Bauformen (Stuttgart) illustrates a large countr mansion near Annaberg, of which Dr. Otto Schulze-Kolbitz i the architect, and the interior of the officers' mess-buildin of the 1st Foot-Artillery Regiment at Munich. The numbe also contains illustrations of several smaller country house and coloured plates of internal decoration.

Correspondence

[The Editor will not be responsible for the opinion expressed by Correspondents.]

Sirapite Plaster.

SIR,—We have an interesting letter from a plasterer i New Zealand who is in charge of the building or the plaste ing of a new theatre there which is being plastered wit our Sirapite plaster. He states the wages in Wellingto are £3 12*s*.; he himself is being paid £4 10*s*. per week t "look after the job," but what we particularly though would interest your readers is the following extract fro his letter:—"We are starting the ceiling 800 yards nex week and are laying the first coat on from the top of th laths. There is plenty of room between girders and th roof and we thought it would not drop about so, neithe so much go through the key. I don't know if that has bee tried in England, but I think it is a good idea where it ca be done."

We have never heard of this method of plastering; i would be interesting to know the views of your reader plastering this way, or if any builder or plasterer has ha any experience of this method.—I am, Sir, yours truly,

The Gypsum Mines, Ltd. Thos. J. Collins.

Bournville Village.

SIR,—As the paragraph relating to Bournville, in you issue of the 7th inst., is liable to lead to misunderstanding, shall be greatly obliged if you will kindy allow me to mak one or two comments respecting it.

With regard to rents, these are never raised during tenancy, but when a house changes hands the rent is recon sidered and raised if it seems necessary, but it is obviousl incorrect to say that it is raised in all cases. The whol income of the Trust goes to helping forward housing condi tions at Bournville and elsewhere, and the Trust i therefore conducted upon business lines. This being so th rents are fixed on a commercial basis, and the tenant prefer this to being in any way indebted to charity. Al though there are plenty of houses to let in the surroundin districts there are often twenty or thirty applications fo any house belonging to the Trust that may become vacant This, it may fairly be argued, is an evidence that the rent are not excessive. About 82 per cent. of the inhabitant are artisans. The Trust is under the final control of th Charity Commissioners, and the balance sheet is submitte to them every year, thus securing that the purpose of th founder shall be fulfilled. No trustee receives any pecuniar benefit from the scheme.—Yours truly,

John H. Barlow,
Secretary.

Bournville Village Trust.

The Architect.

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FORTHCOMING EVENTS.

Saturday, July 22.

Society of Architects : Sketching Party's visit to Oxford.

Institution of Municipal Engineers : Annual Meeting of the Eastern District at Yarmouth.

Edinburgh Architectural Association : Annual Excursion to St. Andrews.

Monday, July 24.

Builders' Benevolent Institution : Annual Meeting at Koh-i-Noor House, Kingsway, W.C.

Tuesday, July 25.

National Federation of Building Trades Employers of Great Britain and Ireland : Half-yearly meeting at Newcastle-on-Tyne (three days).

Royal Archæological Institute : Summer Meeting opens at Cardiff (closes August 2).

Thursday, July 27.

Guild of Architects' Assistants : Visit to Royal Academy of Music, Marylebone Road, N.W. (Messrs. Ernest George & Yeates, architects).

Nottingham Architectural Society : Annual Excursion to Windsor.

ST. PAUL'S BRIDGE.

THE report by the three eminent architects, Sir William Emerson, Mr. T. E. Collcutt, and Mr. J. J. Burnet, who were consulted by the Bridge House Estates Committee of the Corporation, and which we published in our last issue, must be taken by all fair-minded critics as a complete justification for the scheme put forward by the Corporation on every point, taking for granted the purposes for which the new bridge is to be constructed.

In the first place, St. Paul's Bridge is intended to provide a new main line route of traffic between north and south London, intermediate between London Bridge and Blackfriars Bridge, and particularly for a junction between the tramway systems of north and south. Personally, we do not admit the necessity of such a connection, but it is an essential condition of the problem presented to the three eminent architects who have been consulted. It has been suggested in the *Times* that an improved Southwark Bridge and a new road traffic bridge at Charing Cross would better meet the requirements of transit between north and south, but obviously this would not comply with the desideratum of a through tramway service without very great additional expense and diversion of the existing systems.

Thus the tramway service is at the root of the whole question, and given this as a governing factor in the problem we admit that the consulting architects could not do otherwise than approve the scheme proposed by the Corporation. A subway for tramcars at the east of St. Paul's Cathedral may be dangerous, and probably is, but one on the south is regarded by Mr. A. J. Barry, Mr. Basil Mott, and Mr. Mervyn Macartney as, in the words of the latter, "too dangerous to be even contemplated." Hence, as a traffic route is desired between north and south London, comprising as an essential feature the construction of a subway for tramcars, one can understand and appreciate the decision of the consulting architects in favour of the scheme of the Bridge House Estates Committee. What would have been the decision of the three eminent architects if there had been no tramways to consider it is perhaps futile to speculate, but we certainly think that no satisfactory case has been made out for the necessity of the through tramway connection. This has been taken for granted, and the postulate governs the whole question.

We next come to the consulting architects' decision as to the desirability of a vista for the bridge terminating in a view of St. Paul's dome or of the scheme proposed by the Corporation. We cannot help thinking that, having already decided that the traffic problem could only be solved by the Corporation's scheme, the consulting architects were ready to consider the views afforded with a certain amount of bias. We must, however, accept their judgment, which appears to rest on three distinct points: first, that a direct view of the south side of the cathedral is not desirable; second, that improved views of the east end, which would be afforded by the Corporation's scheme, are not only preferable, but in themselves desirable; third, that the proposed vista would necessitate a skew bridge over the river, and for this it would be almost impossible to make a satisfactory monumental design in masonry, but the skew bridge would probably have to be constructed in steel.

Everyone may not be prepared to admit the correctness of the judgment that a direct view of the side of the cathedral is not desirable. Some will traverse the reference to the superficial ornamentation of the wall surfaces of the south elevation by urging the importance of the dome and the south porch, but the relative prominence given to the various elements of Wren's design is a matter of taste and judgment, and therefore the judgment of those to whom the question has been referred must be accepted. They are the appointed arbiters and their decision must be regarded as final.

There can be no question that by the Corporation scheme improved views of the east end of the cathedral will be opened up, and these would be rendered still more effective by the adoption of the suggestions made by the consulting architects of increased space next Old Change and Cannon Street. No doubt these improved views were considered to offset the loss of the vista entailed by the abandonment of the skew bridge line of view. Here, again, we have a question of pro and con. Some may prefer the vista leading up to the dome and south porch of the cathedral; others may attach more value to the new views from north-east and south-east, and the judgment of the referees must in this conflict of taste also be accepted without question.

Last of the three main points on which the consulting architects' decision appears to have been based is their objection to a skew bridge. That such a bridge could not be the subject of a satisfactory monumental design in masonry is a dictum that must be received with respect by reason of the quarter from which it comes, but it seems rather to imply that a monumental design must be symmetrical, which is not altogether an incontrovertible proposition. It is to be noted that Mr. Collcutt expressed his separate and individual opinion "that it would be possible to construct a bridge over the river giving a vista of St. Paul's," which he would prefer, "if found practicable." As Mr. Collcutt joins his colleagues in their report, it is to be assumed that, for other reasons than the difficulty of construction, it is not practicable to adopt the vista scheme. Mr. Collcutt does not traverse in his separate opinion the statements that the skew bridge would not be monumental and would probably have to be constructed in steel.

The consulting architects disclaim that it was "part of their duty to examine with care the financial aspects of the conflicting schemes which have been the subject of public discussion," and seem to have accepted the view put before them that the vista scheme "would involve altogether heavier expenditure, out of all proportion to the Corporation project." Having decided on other grounds that the "Corporation project" was superior to the vista scheme, it is perhaps scarcely to be expected that the consulting architects should examine with care the financial aspects of the latter or other schemes, and it must be admitted that the advocates of opposition schemes to the Corporation project have not tendered any evidence as to the cost of their proposals. St. Paul's Bridge, as projected by the Corporation, is estimated to cost £1,646,983, a very definite figure. Equally definite figures are wanting for the several opposition proposals. Hence their proposers could not expect that the referees should give them credit for superior financial advantages or even equal practicability with the Corporation project.

There still remains the question of the design of the fabric of the bridge and its approaches after the decision that the general lines of the Corporation project are to be adopted, and the consulting architects naturally enforce the view that the designs for the bridge, the archways over Queen Victoria Street and Thames Street, and the approaches as well as the accesses from the higher and lower levels and the debouchment of the roads should be the subject of collaboration between architects and engineers. One can scarcely suppose that there will be any opposition to this view on the part of the Corporation, and if the conditions are not framed in too niggardly a spirit there is still hope for the realisation of a bridge that shall be a credit to the City of London.

NOTES AND COMMENTS.

The selection now made of the site for London's memorial to King Edward VII., at the Piccadilly end of the Broad Walk in Green Park, will not, of course, please everybody. The only real objection that we can see is that it is a little out of the way, but if the memorial is in itself of sufficient importance this objection is minimised, as it will be sufficiently obvious to invite inspection. The St. James's Park idea having been abandoned, the chief competitor with the selected site seems to have been the Charing Cross side of the Admiralty Arch. This latter suggestion bristles with difficulties. A memorial here would conflict with the Nelson column and be difficult to arrange in consonance with the Admiralty Arch and the street levels.

University College, London, is promising excellent developments next session in relation to architecture. The higher course of advanced design, somewhat on the lines of the Ecole des Beaux-Arts at Paris, under the direction of Mr. J. J. Burnet, opens up for English students opportunities not hitherto available in this country for the study of the art of architecture. On the other side of architectural work, the systematic study of heating and ventilation is a branch of practice that has hitherto received too little attention from architects, who have for the most part been content to entrust schemes for their buildings to firms of tradesmen who have something to sell, and hence are not likely to consider each individual problem on its own merits and without bias. No one system of heating or of ventilation is universally the best for every building, and any attempt to maintain the contrary proposition savours of quackery as much as the recommendation of any particular pill or potion as an infallible cure for all diseases.

A sad accident at the Co-operative Wholesale Society's premises in Balloon Street, Manchester, points out the necessity for most careful examination of all wire ropes connected with machinery, and particularly, as in this case, with lifts. The deceased with two other men went to examine steel wire ropes, as to the condition of which there was clearly some doubt, for one of four had been removed for repairs and the other three were under examination when they broke. Wire ropes are very apt to deteriorate in strength and to give way suddenly, and should never be trusted for a lengthy life even if actual signs of failure are not apparent.

It is pleasant to find that, whilst parties of English experts and students of town planning have found it instructive to visit Germany and to learn there useful lessons, the converse study of English methods is sufficiently important to attract visitors from Germany, and under the auspices of the German Garden City Association a party of some seventy ladies and gentlemen, including His Excellency Ulrich von Trotha (chamberlain to the Crown Prince of Germany), Herr Vrelhaber (one of the directors of Krupps) and Councillor Smith, of Essen, besides representatives of other German municipalities, are now visiting our country to study our methods.

When the Sheffield Town Hall was built from the designs of the late Mr. E. W. Mountford, it was considered by many of the townspeople to be extravagantly commodious, but even the growth of municipal activities has apparently rendered necessary a considerable extension, for which Mr. Edwards, the City Architect, has prepared the plans. The Council Chamber is to be enlarged by the construction of a new public gallery, the space occupied by the present one being thrown into the Council Chamber. The Lord Mayor is to be provided with a bedroom and dressing-room, and the Lady Mayoress is to have a boudoir. There will be a bath in the dressing-room. Another new room is to be the Council Retiring and Reception Room, which will be about double the size of the existing ante-room. The present Retiring Room is far from adequate. It is much too public. It serves as a waiting-room for callers and a tea-room for Councillors, so that no privacy can be obtained. The smoke-room is even more undignified. Members who wish to smoke have to sit in the cloak-room with hats and coats as their only screen. So that Councillors will appreciate a room to which they can retire and find some degree of privacy and comfort. Other new rooms on that floor will be devoted to the Water Works (drawing office), to the Water Works Engineer, to licensing business, and to Old-Age Pensions work. New rooms on the floor below will be mainly for the City Engineer's Departments for Town Planning, Improvement, Building Inspectors, &c.; while on the lower ground floor the Chief Assistant-Overseer's Department will find the additional accommodation required. The City Architect will take all the additional rooms (seven) on the second floor. The estimated cost of the proposed extension is £38,798, which includes a new system of ventilation for the Council Chamber.

The summer meeting of the Royal Archæological Institute opens next Tuesday at Cardiff with the customary civic welcome in the City Hall. In the afternoon visits will be paid to Cardiff Castle, St. John's Church, the site of the Austin Friary, and the Welsh Museum. The opening day will conclude with a short address at the City Hall by the Earl of Plymouth, the president of the meeting. When the Royal Archæological Institute met at Oxford last year there was no little difficulty in deciding which interesting features could be overlooked at their headquarters so as to allow sufficient time for excursions in the neighbourhood. About three and a half days out of eight were apportioned to the University city, and even then much was left untouched. But at Cardiff no such embarrassment of riches occurs. Consequently, the organisers have arranged for itineraries in South Wales for seven out of their eight days. On the other hand, as the area covered is wide, the expense is proportionately greater. On Wednesday, July 26, the train starts at 9.15 for Caerphilly Castle, and visits will later be paid to Llandaff Cathedral and St. Fagan's Castle. On the next day the visits include St. Donat's Church and

Castle, Llantwit Major Church, and Old Beaupré. On Friday, the 28th inst., the party will see Coity Castle and Church, Coychurch, and Ewenny Priory. Good-bye will be said to Cardiff on the Saturday, as the headquarters will be transferred for the remainder of the meeting to Tenby, visits being paid en route to Margam and Neath Abbeys. The principal antiquarian objects to be seen at Tenby are the almost complete fourteenth century town walls and the church. Wind and weather permitting, the party take a steamer on Monday afternoon, July 31, to the Isle of Caldy, where the existing monastic establishment can be traced back to the sixth century. Three castles will be visited on the next day, viz., Carew, Pembroke, and Manorbier, as well as Lamphey Palace and Monkton Priory Church. The concluding day, August 2, will be spent at St. Davids, which includes the Cathedral, the Bishop's Palace, and St. Mary's College. The programme is, it will be seen, a highly interesting one, and it only remains for favourable weather conditions to prevail to make the 1911 summer excursion of the Royal Archæological Institute as successful as any of its predecessors.

NINTH INTERNATIONAL CONGRESS OF ARCHITECTS, ROME, OCTOBER 2-10, 1911.

General Rules.

THE subjects for discussion in the Ninth International Congress of Architects have been decided upon by the Managing Committee in accordance with the Permanent Committee for Congresses of Architects.

1. Any language may be used at the opening meeting.

2. The languages to be used in the discussions must be French, Italian, English or German.

3. All duly enrolled members may present articles and resolutions for consideration upon the various subjects appointed in the programme. These must reach the General Committee of Organisation before August 15, accompanied by a summary in one of the four admitted languages.

4. If at the above-mentioned date no article or proposal has been presented on any given subject, that subject will be cancelled from the order of the day.

5. The General Committee of Organisation will compile summaries of the resolutions to be put to the vote in the four admitted languages and have them distributed before the opening of the Congress.

6. The Congress will hold a general inaugural meeting in which the order for each day will be decided on by the General Committee of Organisation in agreement with the Permanent Committee.

7. The names of those to constitute the Presidency of the Congress will be proposed by the Permanent Committee in agreement with the General Committee of Organisation in a special preparatory meeting; these names to be communicated to the inaugural meeting for confirmation.

8. In the successive meetings subjects will be discussed in the order appointed by the Presidency.

9. The sittings will be presided over by the President, or by a Vice-President delegated by him, also by three other Vice-Presidents of different nationalities and by the secretaries.

10. When any member of the Congress has expressed his opinions, all other members have the right to offer criticisms. All discussions are to be conducted according to Parliamentary rules.

11. Every introducer of a subject will be allowed ten minutes for speaking; other members will be allowed five minutes to speak once on any subject. The introducer is allowed five minutes at the end for reply. Proposers of special orders of the day are allowed five minutes to make explanations.

12. Governmental delegates have the right of expressing their opinions before the votation on any resolution.

13. At the close of every sitting the secretaries give reports of that sitting in the four languages of the Congress.

14. In case of a multiplicity of resolutions proposed on the same subject, the President is empowered to request the proposers to amalgamate them all in one. The Presidency of a Committee has like power in a similar case, and may, previous to the Congress, nominate a proposer, who will however retain the right of speaking on his subject during the sitting in which it is discussed.

15. When the discussion of a subject is closed, resolutions have been approved, and the order of the day is gone through, the Presidency has power to postpone the votation to another sitting, but the discussion must not be re-opened.

16. Except in special cases, voting follows immediately after a discussion, and the various resolutions are voted for in the order of their presentation; precedence, however, is given to any resolution declaring a subject not admissible.

17. Voting may be made by show of hands or by division, and the decision of the Presidency is final.

18. If a request, however, be made by ten members for a second counting of votes, it must be immediately granted.

19. All resolutions passed in the various sittings must be communicated to the closing meeting, and put to the vote, either by show of hands or by division.

20. Only those resolutions of the Congress are valid that have been confirmed by votation in the closing general meeting.

21. The Presidency will decide as to the other subjects which should be in the order of the day at the closing session.

22. All effective members have the right of voting and taking part in discussions subject to the rules. They may also introduce resolutions connected with the subjects in the order of the day.

23. Resolutions together with articles on subjects not included in the order of the day may be submitted in writing, in one of the four languages, to the first meeting of the Congress. Said resolutions must be supported by at least twenty effective members, and if the assembly by a majority of votes consents, they will be entered in the order of the day of a future sitting.

24. Besides the ordinary sitting there may be held special meetings for lectures and other communications. After a lecture there will be no discussion or voting. The programme for such meetings will be prepared by the General Committee of Organisation before the convening of the Congress, and will not admit of any alteration.

Regulations for Enrolment of Members of the Congress.

1. The ninth International Congress of Architects is to be held in Rome from October 2 to 10, on the occasion of the Jubilee festivities for the proclamation of the Kingdom of Italy, in conformity with the decisions of the permanent Committee of Management of the International Congresses of Architects in the session of May 23, 1908, at the close of the Congress of Vienna.

2. The Congress is organised by a specially constituted General Committee of Organisation consisting of the Italian Section of the permanent Committee, of the delegates of the academies and of the various associations, of the representatives of the artistic and architectural press, and of architects appointed at the sitting of July 2, 1909, in conformity with the statute of the permanent Committee of International Congresses of Architects.

3. The Congress will convene in Rome the members of the permanent Committee of International Congresses of Architects, the members of the various sections of that Committee, the special delegates of Governments, the representatives of all the academies and associations of architects and all who, being interested in the art of architecture, will enrol themselves according to the following rules.

4. The Congress will consist of effective members and associates.

Effective members are the special delegates of Governments, academies and associations, and all architects and students of subjects connected with architecture.

Academies and associations may be enrolled as effective members, and represented by a delegate.

Associates are the persons of the family of effective members.*

5. The entrance fee for effective members is 25 lire, and for associates 15 lire.

Government delegates pay no entrance fee.

6. Members and associates will be enrolled in the various countries by the sections of the Permanent Committee, in Italy by the General Committee of Organisation, and in countries where as yet there is no section of the Permanent Committee, by special delegates appointed by the Permanent Committee.

7. The section will make all needful regulations regarding enrolment in their respective countries, they will decide

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* The Permanent Committee for Congresses of Architects has unanimously agreed upon the desirability of following in every country the general rule to admit as members of the Ninth Congress only architects and persons actually practising the art of architecture whether in a public or private capacity, and as associates only the wives, sons and daughters of members.

whether applicants are eligible, and in what category they should be placed; they will receive the names and entrance fees, and will send them to the General Committee of Organisation at least not later than September 1, 1911.

8. The said sections are empowered to deduct 5 per cent. from the amount of the entrance fees to reimburse themselves for expenses of postage, &c.

9. Members and associates have equal rights to reduction of railway fares, to reduction of hotel expenses, to special tickets of admission to galleries, museums, &c., and to be present at all the sessions of the Congress, and at all the festivities mentioned in the programme. But only effective members have the right of joining in discussions, of voting, and of receiving the printed publications of the Congress.

ABBOT'S LANGLEY AND KING'S LANGLEY.*

So much of antiquarian, archæological and historic interest has been written about the county of Hertford that it is extremely difficult in dealing with the literature concerning any one place to know what to select and what to ignore. In the course of my reading I find Langley mentioned no less than three times in Domesday Book. From the record there preserved it appears that at the time of the Norman Conquest one of Earl Harold's men named Swen held a manor of Langelei, which consisted of a hide and a half of land and was worth thirty shillings in the time of Edward the Confessor; that the Abbot of St. Albans held the manor of Abbot's Langley, consisting of five and a half hides and worth fifteen pounds; while the manor of King's Langley, consisting of a hide and a half and worth eight pounds, was held by two of Earl Lewin's men named Thuri and Seric. After the Conquest, Swen's manor was held by one Othbert, and the manors of Abbot's Langley and King's Langley were taken to form part of the huge fee assigned to Count Robert of Mortain, the Conqueror's half-brother.

"Names being necessary to distinguish one place from another, it is but natural that those names should be chiefly taken from some palpable peculiarity either of position, soil, natural products, or appearance of the locality. . . . Langley—signifying the Long Pasture—would naturally suggest itself as an appropriate name for an extent of fertile land unobstructed by timber, and watered by a stream flowing through, or by, it. Hence we find throughout England a great number of places known as Langley. The counties of Berks, Durham, Essex, Kent, Norfolk, Oxford, Salop, Warwick, and Wilts, have each a Langley; and in other counties are found compounds of the same name, as Kirk-Langley in Derbyshire, and Langley-Marish in Buckinghamshire" (Cussans). That part of Langley lying to the west of the River Gade was designated King's Langley from the fact that Henry III. erected a palace there, in contradistinction to the part, lying on the other side of the river, which was termed Abbot's Langley, from the fact that in the time of Edward the Confessor it was given to the Abbots of St. Albans by Egelwine the Swart (or Black) and Wincelfled his wife. The monks of St. Albans continued to hold the manor of Abbot's Langley until the Dissolution of the Monasteries, and it appears to have come into the possession of the Crown by purchase in the latter half of the sixteenth century, but to have remained Crown property for less than one hundred years, for one Francis Combe left it in 1644 by will equally to Sidney-Sussex College, Cambridge, and Trinity College, Oxford.

CHURCH OF ST. LAWRENCE, ABBOT'S LANGLEY.

Abbot's Langley is chiefly interesting as being the birthplace of Nicholas Breakspear, who became Pope Adrian IV. He was the only Englishman who ever occupied the papal throne. He was the son of a servant in the abbey of St. Albans, where he himself filled a menial post for some time.

CHURCH OF ST. LAWRENCE, ABBOT'S LANGLEY.

He is said to have shown very little talent in his young days, and was considered so dull of intellect that when he asked to be admitted to the monastery as a monk he was driven away for his presumption. However, he went abroad and studied, and was admitted as a lay brother to the monastery of St. Rufus, near Avignon in Provence, where he so distinguished himself by his diligence, learning, and strict observance of monastic discipline, that he was chosen Abbot on that office falling vacant. He became a Cardinal in 1146, and was elected Pope in 1154. King Henry II. sent the Abbot of St. Albans and three bishops to Rome with congratulations, which Adrian acknowledged by granting considerable privileges to the abbey of St. Albans, including exemption from all ecclesiastical jurisdiction except that of Rome. The following year Adrian, perhaps with natural pride in being able to confer favours on the King of his native land, and perhaps as an assertion of the papal claim to the right to dispose of kingdoms, and certainly in the belief that Henry would use his power for the good of religion, bestowed the sovereignty of Ireland upon him, but reserved all ecclesiastical rights, and made one penny from each house payable yearly to St. Peter. The bull making the grant to Henry contains the following passage:—

"There is no doubt, and your nobility acknowledges that Ireland and all islands upon which Christ the Sun of Righteousness has shone, and which have received the teachings of Christian faith, rightfully belong to the blessed Peter and the most Holy Roman Church."

Adrian IV. seems to have been a very masterful man; he even laid Rome itself under an interdict on one occasion. When Frederick Barbarossa entered Italy for the purpose of obtaining the Crown of Germany from the hands of the Pope, Adrian refused to confer it until Frederick had first held his stirrup as a mark of respect.

Quarrels afterwards arose between Adrian and Frederick of such a nature that Adrian determined to excommunicate Frederick, but before he could pronounce the sentence he died (1159). It is said by some that a fly choked him, but by others that he was poisoned, which is probably more in accordance with the practice of the times in which he lived.

The church of Abbot's Langley is a handsome and spacious building, partly Norman and partly Early English in style. The nave and tower are rough-cast, the chancel flint and stone. It is dedicated to St. Lawrence, a half-figure of whom may be seen in a small portion of glass in one of the clerestory windows in the north side of the church. The south porch is of eighteenth century work, but the inner door dates from the fifteenth century. The church consists of chancel, nave, north and south aisles, large south chapel, south porch, and west embattled tower. Although its architectural history cannot be traced back beyond the latter part of the twelfth century, it is believed that a Saxon church existed on the site, for at the time of the Domesday survey, a priest resided at Abbot's Langley. The nave of the church appears to be all that remains of the Norman building; the massive circular pillars, with their carved capitals and round arches bearing the zigzag or chevron ornament, are very fine and striking. The chancel is extremely long and narrow, and out of proportion to the other parts of the church. The south chapel, on the other hand, is spacious. This part was added early in the fourteenth century, and opened to the chancel by an arcade of two pointed arches. About the beginning of the sixteenth century an endeavour was made to improve the communication between the south chapel and the nave, and the south-eastern portion of the nave was taken down and a circular Norman column rebuilt as an octagonal column, an arch being thrown across in a somewhat oblique direction to the western pillar of the chancel presenting a rather awkward appearance. The South Chapel, frequently referred to as the "Lady Chapel," at one time superseded the chancel, the real chancel being used as a mortuary chapel. Paintings of two figures of bishops were originally on the eastern wall of the chapel, one of them probably representing St. Thomas of Canterbury (Thomas à Becket), but they can scarcely be seen now. The clerestory is irregularly spaced, having three windows on the south side and two only on the north side. These windows are of fifteenth century date, and so is the roof. The corbels supporting the tie-beams are ornamented with grotesque heads. The font is octagonal in shape, with a panelled bowl and stem, and dates from about the year 1400. "On the sides of the bowls are carved the emblems of the Evangelists within boldly cut quatrefoils alternating with shields similarly enclosed. On these four shields it is probable that the arms of the benefactors of the church were originally painted" (Cussans). A marble monument to Robert Raymond, Lord Chief Justice, is situated at the west end of the south aisle. The judge, a full-sized figure in a reclining posture, is in his judicial robes. He became Lord Chief Justice of England in 1724, and was made Baron Raymond of Abbot's Langley in 1731.

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* A Paper read before the Upper Norwood Athenæum by Alfred Burch on July 1.

CHURCH OF ALL SAINTS, KING'S LANGLEY.

There are several brasses in the church: one with the effigy of Rauffe Horwood, died 1498, and his wives Elizabeth and Joan, with three sons and three daughters. The vestry screen of carved oak under the tower was erected in 1908, and the lych gate was put up in 1900 to the memory of her late Majesty Queen Victoria. Over the altar is a marble reredos portraying the Lord's Supper.

The manor of King's Langley, which at the Norman Conquest had been included in the fee of Count Robert of Mortain, reverted to the Crown when Robert's son William was dispossessed of his lands in consequence of the part he took in the rising of the Norman barons against Henry I. The manor was held successively by Eleanor, the Queen of Edward I., Edward Prince of Wales, Isabella, the Queen of Edward III., Joan of Navarre, the Queen of Henry IV., Cicely, Duchess of York, mother of Edward IV., Elizabeth, Queen of Henry VII., and by Catherine of Arragon, Anne Boleyn, and Jane Seymour, three of the wives of Henry VIII. It was subsequently annexed to the Duchy of Lancaster, and later held in trust for Charles, Prince of Wales (afterwards Charles I.). It was afterwards sold to pay the king's debts, and became private property.

A royal palace and park had their site on a hill a short distance out of King's Langley. The palace was in existence as early as 1299, and was built by Henry III., and occupied by himself and several of his successors. It was here that Edmund of Langley, the fifth son of Edward III. and Queen Philippa was born, on June 5, 1341, and baptized by Michael de Mentmore, Abbot of St. Albans. This Prince, afterwards created Duke of York, was the founder of the "White Rose" faction. He greatly distinguished himself with his brothers, the Black Prince and the Duke of Lancaster, in the French wars. Edward III. held his Court at the Palace of King's Langley, when London was devastated by plague in 1349, and Richard II. kept Christmas here in great state in 1392. The fourth scene in the third act of Shakespeare's play of *Richard II.* is laid in the garden of the palace, and it was there that Richard's Queen overheard one of the gardeners tell of her husband's overthrow by Henry of Bolingbroke, when she exclaimed:—

> "Gardener, for telling me this news of woe,
> Pray God the plants thou graft'st may never grow."

That prayer has been fully answered, for garden, palace and all are gone, and only a few stones serve to mark the site.

Dugdale says that "an house of Friars Preachers (Black, or Dominican Friars) was founded near the royal palace of King's Langley (under letters patent of Edward II. in 1308), by Roger, the son of Robert Helle, an English baron, and enlarged in buildings and increased in revenue by the munificence of the kings Edward I., Edward II., Edward III., and Edward IV., so as to exceed all houses of this Order in England, being valued, 26 Henry VIII., at 122*l.* 4*s.* per annum (Dugdale), 150*l.* 14*s.* 8*d.* (Speed). Queen Mary restored this House to a prioress and nuns who were dissolved 1 Elizabeth and the site was granted 16 Elizabeth to Edward Grimston." The English baron referred to as Robert Helle is said to have been "so-called, because he played the devil with the Welsh."

The church of King's Langley is dedicated to All Saints. It is built of flints, with quoins and dressings of Totternhoe stone, in the Perpendicular style, and consists of chancel, nave of three bays, north and south aisles, north and south porches, and a western embattled tower, with a short, thin spire, containing a clock and six bells. The walls of the nave date from the thirteenth century, and the plan of the nave is probably that of a still earlier building. The north aisle is believed to date from the early part of the fourteenth century, but the nave and south side of the church were practically rebuilt about a century later. The north chapel and western tower were probably rebuilt later in the fifteenth century. Three pointed arches divide the nave from the aisles, and a fine one divides the nave from the chancel. The roof is of timber, arched and modern throughout. The only woodwork of interest is the pulpit, which is a pretty specimen of early seventeenth century work. It is hexagonal in shape, with a carved and panelled body resting on a modern stone base. One side of the body is modern, but the brackets carrying the projecting book board are original. Over the pulpit is the original tester, adding greatly to its effect. In a small window on the north side of the north chapel is a little old glass. The stained glass window at the east end of this chapel was the gift of her late Majesty Queen Victoria. The north chapel contains the tomb of Edmund of Langley.

INTERIOR.—CHURCH OF ALL SAINTS, KING'S LANGLEY.

The tomb was originally in the Friary Church, whence it was removed to All Saints Church in 1575, and placed inside the altar rails against the north wall of the chancel. It was moved to its present position in 1877. The tomb, the sides of which are of alabaster on a plinth of Purbeck marble, is especially interesting on account of its carved heraldic decoration of Plantagenet shields. There are three shields at each end, and seven on its western side, but those on its eastern side are now lost. The three at the north end are (1) St. Edward the Confessor, (2) King Richard II., (3) St. Edmund, king and martyr. The seven on the west side are (1) Shield of the Empire, (2) Prince of Wales, (3) Lionel Duke of Clarence, (4) Edmund of Langley with Isabel, daughter of Pedro the Cruel, (5) Edmund of Langley, Duke of York, (6) Thomas, Duke of Gloucester, (7) Henry of Bolingbroke, Earl of Derby. The three on the south end are (1) Holand, Earl of Kent, (2) Holand, Earl of Huntingdon, (3) FitzAlan, Earl of Arundel. The present top of the tomb is part of an altar slab, and bears three out of the original five incised consecration crosses in allusion to the five wounds of our Saviour. The original cover to the tomb stands against the wall of the chapel. It bears the indent of a female figure which can only be that of Edmund's wife Isabel, who died in 1393. When the tomb was moved the bodies of one male and two females were found inside, one being without doubt the body of Edmund himself, while the others are supposed to be those of his first wife, Isabel of Castile, and of Anne Mortimer, the great-granddaughter of Edward III., and wife of Richard of Conisburgh, second son of Edmund of Langley.

The north chapel is separated from the north aisle by a screen, next to which is a plain tomb of white marble to Sir William Glasscocks, Knt., Judge of the Admiralty in Ireland in the reign of Charles II., who died in 1688. Near by is an old iron coffer strongly bound, and a large altar tomb of Caen stone, bearing upon it the recumbent figures of a knight and lady. The figures are much injured. The knight is in chain armour with hands folded. The lady has a robe, and over it a long cloak, and from her neck hangs a chain and cross. Her hands are broken off, and her face is much mutilated. Salmon states that, in his opinion, this is the tomb of Piers Gaveston, the favourite of Edward II., whom Stowe says was buried in this church, but the arms upon the tomb are those of Sir John Verney of Pendley, who was Sheriff of Hertfordshire and Essex in the fourteenth year of the reign of Henry VII.

Several slabs with brasses still remain in the church. One to the memory of John Carter, who was buried in 1588, represents him as having had two wives and nine children by each, eighteen in all. In the vestry is a curious proclamation of the time of Charles II. concerning the selection of children for "The Healing." It is supposed to refer to the healing virtues of the touch of the "Merry Monarch," which was in those days regarded as efficacious in certain disorders. Behind the altar is a handsome reredos of marble and stone representing the Lord's Supper, and carved in high relief. It was erected in 1877 by the late Mr. A. H. Longman, J.P., to the memory of his father.

In conclusion I must express my indebtedness for the information contained in my paper to the works of Cussans, Andrews, Bayley and Britton, Tompkins, Dugdale, Murphy, and Kelly, to the Encyclopædia Britannica, the Victoria History of Hertfordshire, and the recent report of the Royal Commission on Historical Monuments in Hertfordshire.

MODERN ELECTRIC WIRING PRACTICE.

AT the annual convention of the Incorporated Municipal Electrical Association, which was held at Brighton last week, the subject of modern wiring practice was discussed. Mr. J. W. Beauchamp, Chief Electrical Engineer, Tunbridge Wells, said that the barrier which must be overcome before the use of electricity can become general was the difficulty of introducing electricity into premises where, on account of cost, there is a disinclination to install the necessary wiring and fittings, although the supply may be desired and its economy well understood. Doubts have been expressed as to the probability of small consumers being remunerative. Certainly such business was of a special character, but on account of its possible magnitude and the comparatively high load factor of lighting supply to private houses it deserved special treatment, more particularly as the growing demand for electric street lighting made it necessary to lay cables in roads where only the smaller consumer could be obtained. A suitably designed system of wiring would do much to assist in solving this problem, and in this connection he discussed the features of modern wiring practice and regulations in so far as they influenced the cost of small-installation work.

Although the Institution of Electrical Engineers' rules were adopted by most supply authorities, there still remained so many exceptions and amendments that no real standard could be said to exist, and there was great lack of uniformity in the quality of electrical installation work within any particular supply area, regulations being observed in the better-class work and evaded or only complied with in a perfunctory manner where competition brought down the price of wiring. Against this tendency the supply authority could only struggle with difficulty as the general run of small house and shop wiring usually fell to the lowest tender, and in many cases there was not the most elementary form of specification to ensure that the several offers were based on the same requirements. This had a demoralising influence on those who tendered for the work, apart from questions of material and workmanship. In many instances they did not allow for a proper arrangement of fittings to secure economy in use for fear that a more meagre scheme at a lower price should be accepted, the builder or the occupier being seldom able without advice to appreciate the greater value which may be offered for the higher price.

The requirements of regulations should be as light as possible, but the enforcement of them should become more stringent. A change in this direction should secure greater uniformity of work, tending to lower the cost of high-class wiring and force up the quality of the lower-class work, as in the latter almost all the trouble arose from insufficiently skilled labour, it being obvious to anyone whose duty it was to inspect wiring work that the employment of competent and full-priced wiremen would frequently reduce the prime cost of jobs and save good material from being reduced to a second-hand condition before it was even put to work. Many of the existing rules were directed towards securing for the consumer a well-designed installation, with regard to capacity of conductors, sectionising, &c. As these could not be enforced, and their value depended so much upon individual circumstances, they would be better eliminated from the category of "don'ts," and issued by the supply authority in the form of simple model specifications describing the requirements of good practice suitable for several different classes of wiring work. Such official specifications would, in his opinion, do much to render practice and prices more uniform, and allow contractors to cultivate different classes of wiring work in accordance with their inclinations and capacity. In any case, in view of the rapidity with which electrical practice changed and the fact that so much electric lighting work was secured in competition with other systems of light and energy supply, it was undesirable that wiring regulations, however simple, should be administered in an inflexible manner, or pass under the control of any centralised body not directly interested in the commercial development of the supply undertakings involved. A consideration of the published regulations of a number of British and foreign authorities controlling or advising upon electrical work showed how great a divergence existed in their requirements, and suggested that, even after allowing for climatic differences and local conditions, the cost of wiring must be affected considerably by the varying limits imposed. The usual insulation-resistance test depended more upon dryness of the building and care used in connecting up fittings than upon the actual resistance of the dielectric, and a fair result might be obtained from wiring which had suffered considerably by careless workmanship and might be doomed to early failure. For these reasons a much lower insulation resistance than was usually called for would suffice, but should be supplemented by inspection of samples of hidden work in every case. It would appear that the true limit of lighting capacity which might be connected to one side of a three-wire system was in the ability to make proper current-carrying connections in the various "loop in" fittings used on branch lighting circuits; 10 amperes should be a workable maximum.

In many cases the limits of pressure-drop at full load were not stated as a percentage, even where supply was given at two different pressures. This provision was suitable for a specification to secure the use of cable of ample size, although where possible actual-sized to be used should be stated. Provided that wiring was not dangerously overloaded, the question of pressure-drop concerned the consumer chiefly, and the increasing efficiency of lamps did not warrant the use of heavy wiring. There was a most striking difference between British and German wiring regulations in the permissible loading of cables. A distinct definition of current-carrying capacity for switches and fuse-fittings was needed

—most modern patterns fulfilled every requirement with regard to breaking circuit, but were greatly overrated so far as concerns their power of carrying full-load current continuously, the makers apparently relying upon the fact that loading was unusually intermittent, or not making enough allowance for inaccurate machining and fitting of parts, which discounted the provisions of the designer very much.

Earthing regulations mostly failed to define the essential requirements for security for risk of shock or fire, which were that every part of a metallic sheathing or conduit system containing conductors should be permanently connected to earth by a conducting path of sufficiently low resistance to carry, without sparking or heating at any part of system, the maximum current which the main fuses of the installation will pass. The earth wire, also, while requiring a definition of minimum size for reasons of mechanical strength, should have a stated size depending on the capacity of the installation. The minimum might be No. 18 S.W.G., No. 14 being unduly heavy and expensive for use on small installations, and, beyond this, the sizes used should bear a relation to the main fuses, or circuit-breaker setting, of the system protected, being selected to carry the full current required to open the circuit without appreciable rise in temperature. Where local circumstances required the earthing wire to be of considerable strength, its area should be proportionately increased. Tests made with lamp or bell for the continuity of a tube system gave little indication of the current-carrying capacity of the many joints and connections through which a fault current would have to be discharged, while the accidental earthing of the tube at one or more points, by contact with structural metal work or water pipes, might make such a test quite deceptive. Earth connections should be made to the rising service pipes of town water systems, water meters being bonded across, or to metal plates buried in the earth in some position where natural dampness exists. Where the system of wiring made it impossible to render all metal-work of motors, lamps, and other apparatus metallically continuous, it was advisable to run throughout the installation a substantial and visible earthing wire or tape, to which all apparatus could be connected and to earth-connect it at one point. This connection could be tested at intervals from different points of the installation by taking an ammeter reading between it and the live poles of the wiring through a small known resistance. The readings would show up any change in the state of the earth connection and prove its energy-discharging capacity in a way which tests with a bell or lamp did not do. Where these methods of earthing were not possible, it was necessary to resort to devices of the lightning-arrestor type, of which the Cardew & Partridge appliances were probably the most used. In these a small air gap was maintained between the outer, neutral, or earthed pole of the system and a connection which included all tubing, frames, and metal work. In the event of the latter rising in potential beyond a certain limit the air gap is bridged by a spark or by electrostatic attraction of a light metal armature, and a short-circuit results, opening the fuses or circuit-breakers. These devices had the drawback that they did not operate with certainty excepting for pressure rises of considerable amount, and so did not altogether avoid risk of shock.

It was desirable to avoid connection to girders and constructional ironwork, which was often insulated by concrete, and even if it appeared to be well earthed, may be so through gas or other pipes making variable contact and subject to removal; to gas pipes of any kind; to hot-water and hydraulic-supply pipes, as they were often jointed with imperfectly conducting material or were only connected to a water-supply system through a tank and ball-cock; to water pipes drawing supply from cisterns fed by ball-cocks, or from wells, as the connection may be broken by lowering of the water level below the delivery or suction pipes; to other earth connections provided for telephones or bells, as these may increase in resistance or provide an alternative path through the instruments to other earths. Earthing in positions which might receive sewage or corrosive waste liquids was not to be recommended, and drains and gulleys, although full of water, often afforded a very indifferent connection to earth owing to the insulating character of the concrete or earthenware of which they are built. The increasing stringency of Home Office regulations had led to the production of various fittings designed to fulfil them. These new designs appeared to fall into two classes; one in which provision is made for earth connecting all metal-work, and the other in which insulating material shrouds all parts from which a shock might be obtained as a result of failure of internal insulations. When substantially made the latter class probably had the advantage, as its efficiency did not depend upon the condition of a more or less elaborate system of earthing wires and damage to the insulating shields could be at once seen and remedied. These precautionary measures were looked upon by many contractors as vexatious, the cost and trouble involved in meeting them was resented, and it became a matter of some difficulty to ascertain with certainty that a tube system, much of which was normally out of sight, had been made capable of safely clearing a fault which might arise in any part of it. In short, if the letter of the Regulations was observed, the cost of the cheaper classes of tube work was increased; on the other hand, if, as was usual, installations were accepted for supply on the strength of a few visible connections between the tubing and a convenient water-pipe, the combined shock and fire risk, small as it obviously was, was distinctly greater than it would be if no earth connection were provided. In an ordinary house, wired with slip-joint tube, a leakage current occurring at any point at all remote from the service entry would probably have to run the gauntlet of sundry loose connections under floors and behind lath partitions, on its way to earth. Undoubtedly, these considerations presented one of the gravest objections to the simpler systems of metallic conduit. Some device was needed to protect concealed wiring mechanically without involving the danger of spreading a leak, or the difficulty of furnishing a completely earthed sheath. Steel tube had much to recommend it on the score of protection for wires and low cost of erection, and had done much to encourage the wiring of small houses during construction, for which purpose it was very suitable. It would seem worth while to consider the extension of the principle of **earthing only portions of tube** within actual reach in wet places, and keeping the remainder in isolated single lengths by the use of fittings and sockets which actually insulated instead of partially connecting as at present; this could be effected by lined sockets or by serving the outside of the tube with compounded tape or braiding—a similar process was used for the protection of iron, gas, and water mains on the Continent, and would not increase the cost of the conduit appreciably, whilst protecting it from rust and destruction by ash, concrete, and plaster. The principal weakness of the earthing precaution lay in the fact that it was not essential to the working of the installation, and the wires and joints upon which it depended might suffer damage without the fact being revealed until they failed to give the expected protection.

Condensation trouble in conduit was only serious where runs of conduit were subject to different temperatures, as in passing from living rooms to cellars and outdoor positions, and could, to a great extent, be prevented by providing drain holes at lowest points and by the use of inspection-boxes well filled with slag wool, or similar non-conducting substances, at points between which considerable temperature difference may exist. Corrosion in buried conduit was generally the result of condensation which, particularly with "close" joint tubes, permitted surrounding plaster to become moist and chemically active; this was very noticeable with plaster or concrete made from ashes. The use of "close" joint tube in any form of cement or plaster was undesirable, but difficult to prevent on jobs where brazed or seamless material was not insisted on throughout. There appeared to be a useful field for a conduit lapped with coarse tape or jute, and compounded outside for such positions.

The most important recent development in wiring appeared to be the re-introduction of the concentric principle in the form of the "Stannos" Wiring System, and where it is possible to work on the surface of a building and use concentric conductors with the outer or return sheath earthed, a saving in cost of 10 to 15 per cent. over slip-joint conduit wiring could be secured by means of it in the hands of men accustomed to its use. Its chief disadvantages appeared to be:—The multiplication of mechanical joints or points where loose connections may occur; the difficulty of securing to plaster and composition walls and ceilings; comparatively feeble resistance to accidental damage; risk of loss of continuity, and consequent sparking or pressure rise on the outer conductor in the event of loose contacts or breakage of sheathing. These difficulties were rather matters of detail, and many of them could possibly be overcome. The great value of this material was in the fact that faults quickly developed into short circuits and put the bad section out of use, whilst repairs were easily carried out; in addition, all the simplicity and advantages of a single pole system were secured. Flexible wiring had been much discussed from time to time, but no effort made to define its utility, or to establish any regulations which might make it safe for certain classes of work without rendering it too expensive. In consequence, a considerable amount of such wiring was actually in use in this country, the material being used in a most improper manner, and only saved from failure by its high quality. Some attempts had been made to produce a strong and safe flexible wire, the result being usually rather clumsy and as costly as the cheaper forms of permanent wiring. There would appear, however, to be a field for such material in connection with heating circuits; a heavy armoured and fairly flexible cord to carry up to 10 amperes without overheating, and provided with good plug terminal fittings and fuses of the cartridge type, might reduce the first cost and consequent difficulty of inducing users of electric light to put in heating and cooking apparatus; such wiring could also be a tenant's fixture capable of removal to, and use in, other premises. A disadvantage peculiar to all fixed surface wiring systems was the difficulty met with when redecorating walls and ceilings, particularly when papering. This fault was sometimes lost sight of by those who advocated such systems, on the grounds that existing decorations were not injured.

Dealing with the cost of wiring small premises, Mr. Beauchamp said that the influence of the system adopted upon cost was indicated by the following figures, which, although actually variable according to circumstances, were relatively representative of the principal methods available for wiring small houses. Examination of these figures also brought out the fact that on the cheaper systems labour costs became a much smaller proportion of the total, suggesting that it was only under some organised scheme of wiring houses in quantity, such as might be arranged by a supply authority, that the fullest economy of these methods could be realised. In putting in very small isolated installations by means of workmen not continuously employed on this class of wiring, it was not to be expected that the labour costs could be kept down to the figure necessary to justify the methods.

Relative Cost per Light of Wiring in Small Private Houses Complete with Metallic Lamps and Simple Pendants.

	Percentage of No. 1.		*s. d.*	Per Light. *£ s. d.*
Screwed seamless conduit (steel) and 600 meg class non-association cable	123	Conduit	5 9	
		Cable	5 9	
		Fittings	5 9	
		Labour	5 3	1 2 6
Brazed slip conduit with clamp continuity fittings	116	Conduit	5 6	
		Cable	5 9	
		Fittings	5 9	
		Labour	4 3	1 1 3
Brazed slip conduit and 600 meg class non-association cable	107	Conduit	4 0	
		Cable	5 9	
		Fittings	5 9	
		Labour	4 0	0 19 6
Brass-cased paper tube	104	Tube	3 6	
		Cable	5 9	
		Fittings	5 9	
		Labour	4 0	0 19 0
No. 1.—Close joint slip conduit (steel) and 600 meg class non-association cable	100	Conduit	2 9	
		Cable	5 9	
		Fittings	5 9	
		Labour	4 0	0 18 3
Wood casing and 600 meg class non-association cable	96	Casing	1 3	
		Cable	5 9	
		Fittings	5 9	
		Labour	4 9	0 17 6
Stannos wiring (concentric)	71	Cable	6 3	
		Fittings	5 9	
		Labour	1 3	0 13 3
Twin rubber and lead-covered cable	71	Cable	6 3	
		Fittings	5 9	
		Labour	1 3	0 13 3
Rubber and cotton flexible and button insulators	70	Cable	5 9	
		Fittings	5 9	
		Labour	1 3	0 12 9
600 meg class non-association cable and cleat insulators	57½	Cable and insulators ...	3 6	
		Fittings	5 9	
		Labour	1 3	0 10 6

(To be continued.)

In connection with the awards made at the Royal College of Art, South Kensington, it is announced that Mr. G. H. Foggitt, a former student of the Department of Architecture at the Leeds School of Art and a competitor in *The Architect* Sketching and Measuring Club, has been awarded a travelling scholarship value £50 for his work in the architecture school of the College. Mr. Foggitt has also been granted the diploma of the College in architecture.

HEATING AND VENTILATING ENGINEERING.

At University College, London, in the Faculty of Engineering, it is intended next session to inaugurate a course of instruction on Heating and Ventilation under the direction of Mr. Arthur H. Barker, B.A., B.Sc., Wh.Sc.

This course is intended for students having a sound elementary knowledge of mathematical science, and intending to specialise in the practice of heating and ventilation.

The full course comprises:—

Z 1. Preliminary public course of lectures on "The Real Nature of the Problems in Heating and Ventilation awaiting solution by the Engineer."

First Term: Tuesday, 5 p.m.

Z 2. Course of lectures on the detail of the subject. This course comprises discussion of the application to the problems of heating and ventilation of the principles of science, and includes such subjects as the following:—Properties of air, water, and steam; theory of heat, conduction, radiation, convection; theory of flow of fluids, air, water, steam; transmission of heat through walls, windows, doors, roofs, &c.; emission of heat by radiators and pipes under different conditions; combustion of fuels, quantities of air, and temperatures attained under different conditions; boilers and chimneys—the principles of design, construction, and economy; distribution of heat, principles of water circulation, high pressure hot water, principles of steam circulation; application of the theory of the flow of water and steam in pipes to the determination of pipe sizes, (*a*) natural circulation, (*b*) forced circulation; descriptions of the various systems of forced circulation and the calculations for them; heating by warm air, stoves, fireplaces, gas, and electricity.

Second Term: Tuesday, 5 p.m. *Fee:* £1 11*s.* 6*d.*

Z 3. A course of laboratory instruction, illustrative of the above subjects (Z 2).

Second Term: (day and hour to be arranged). *Fee:* Lectures (Z 2) and laboratory instruction (Z 3), £3 3*s.*

A 1. Experimental research for those students competent to undertake original work under the direction of the lecturer. This work will continue throughout the session.

Students admitted to this course will pay a registration fee of one guinea and a term fee not exceeding three guineas a term. (The latter will vary according to the amount of time and work.)

A 2. Drawing office.

The work in the drawing office will include the preparation of complete schemes for the heating and ventilation of large buildings. Students will be required to make complete calculations and take out quantities, price them, and generally to do the whole of the work necessary for the preparation of a high class tender for the work. All students studying the subject should devote at least two days a week to drawing office work throughout the second and third terms.

Students taking the full course in heating and ventilating engineering will be required to translate selected papers from French and German into English. Students who have not already a good knowledge of French and German should attend courses in the departments of French and German, so as to be able to read those languages with ease.

At the end of the second term, a tour in Germany will be arranged to inspect important installations there. The tour will be under the guidance of the lecturer, to whom application for further particulars should be made.

ILLUSTRATIONS.

UNIVERSITY COLLEGE OF NORTH WALES, BANGOR.

The foundation-stone of the University College of North Wales was laid on July 9, 1907, by his late Majesty King Edward VII. On July 14 last the buildings were formally opened by King George V. The site, which was purchased by the Corporation of Bangor, and then handed over as a free gift to the College, stands on a considerable slope. In plan the buildings may be said to take the form of two quadrangles. The exteriors are faced with Cefn stone from North Wales, while Precelly slates are used on the roofs. A limited competition was arranged in 1906, and the design submitted by Mr. Henry T. Hare, F.R.I.B.A., was selected out of those submitted by five architects. Up to the present over £100,000 has been subscribed to the fund, but further contributions are required before the entire building scheme can be carried out and the buildings opened free of debt.

A MODERN SYSTEM OF PROTECTING BUILDINGS FROM LIGHTNING.

By Mr. KILLINGWORTH HEDGES, M.I.C.E., Hon. Secretary of the Lightning Research Committee (1905 Report).

THE ever-advancing science of the twentieth century has recognised the all-important part which electricity plays in the routine of everyday life, and has learnt to enslave it for the public good and also to safeguard the community against the many dangers where it is insufficiently controlled. The greatest installations of earth-made electricity are puny indeed when compared with that which comes from the heavens above, and it is only by conjecture that we can fix the length of the lightning flash or determine its potential, as the energy developed by a single B flash * is probably greater in horse-power than the total amount of current produced by all the generating stations which supply the lighting and traction of the whole of London.

What the actual electromotive force in volts behind a flash is which enables it to leap through space hardly matters, as we have so many examples of the destructive force exerted on buildings; it must be something more than electrical E.M.F. which causes the lightning to drill holes in the solid granite of the Alps and fuse the sands of the desert into quartzose, forming the beautiful tubular rootlike structures called "fulgurites."

Grand however as it undoubtedly is to watch the lightning and listen to the reverberations of the thunder, we each and all of us, say what we will, instinctively dread it, knowing it to be so frequently destructive to life and property; and this being so it becomes a matter of great interest to the architect and surveyor to examine the methods hitherto used for the protection of buildings, and to consider how far they have succeeded and how modern lightning conductors should be installed.

To most of us this lightning conductor is a familiar object which inspires us with a sense of safety if (during a thunderstorm) we enter a building to which it is attached. We have no doubt been brought up with the idea that if a flash of lightning were to visit our immediate neighbourhood it would infallibly make straight for the conductor and through it pass harmlessly to the ground. Probably this view is still held by many architects and others who, having designed an imposing building, add a few words to their specification, such as "A suitable lightning conductor to be fixed." The effect of a single conductor on a large building is about as much good as placing a signpost on the roof with an inscription that "Lightning is warned off." An unprotected house is struck and perhaps set on fire by lightning, and the owner of a similar building imagines that because a metal rod has been erected some time or other and runs from the top of one of the chimney stacks to earth, his building is immune. Why should a flash which has perhaps travelled through a mile of space be led out of its course for the last few yards of its journey to strike this conductor while there is other metal work about the roof which offers a path, though not so direct, to earth?

The Lightning Research Committee, organised jointly by the Royal Institute of British Architects and the Surveyors' Institution, investigated a very large number of strokes from particulars furnished by their observers, each case being tabulated on a special form. After the first year it was decided to confine the investigations to buildings fitted with conductors, and forms were received with particulars of thirty-nine buildings which were supposed to be protected.

They will be found summarised and put into tabular form in Appendix A of the L.R.C. 1905 Report.

The principal causes of the failure of the usual style of lightning rod as fitted on the buildings investigated appear to be due to the following: (1) insufficient number of conductors and earth connections; (2) the absence of any system of connecting the metallic portions of the building to the lightning conductor, especially the interconnection of the roofs, finials, rain-water pipes and gutters. These lightning strokes may be divided into three classes: (1) those where the conductor effectively conveyed a portion of the stroke to earth, but some of the current side-flashed to metalwork which was not connected to the earth and so damaged the building; the practice of running the conductor, in order to make a neat job, round projecting brick or stonework, often with sharp bends, doubtless facilitated in more than one case the deviation of the flash from its direct path; (2) in several observations a metallic roof of large area received the flash, it consequently became highly charged, and the single conductor failed to convey the whole of the stroke, and what might be termed a condenser effect was produced, and the very high tension current set up went to earth through the unusual path of a speaking-tube and electric bell wire; (3) a flash divided in the air and struck the roof of the house at two points, the rod successfully discharged one portion, but the other, falling several yards away where there was no conductor, jumped from brickwork to metal, considerable damage resulting.

Earth Connections.—The largest proportion of failures was due to defective earth connections; a coil of cable in some instances was the substitute for the earth-plate, and even where a plate had been used, owing to the soil drying near the foundations of the building, or subsiding on account of drainage, the earth connections of a fourth of the cases reported were faulty, the result being that instead of a path of low resistance and general distribution of energy an opposite effect was produced.

Although full details of the observers' notes are not published in the L.R.C.'s Report, there is much valuable information, and the writer has endeavoured to make it more interesting by reproducing some of the observers' photographs and sketches.*

Before setting out the various details of a building which should be considered by those who wish to shield it from lightning, one must first study the agent which we have to deal with; therefore the writer makes no excuse for quoting from Sir OLIVER LODGE's (member of the L.R.C.) preface to the Report.

"It is not so much quantity of electricity that has to be attended to as electrical energy." "A sudden dissipation of energy is always violent." "Guncotton possesses a store of potential energy locked up in it to a dangerous extent; if it be dissipated suddenly, as by percussion, a violent explosion results, but if it be dissipated gradually, as by a flame, the energy is got rid of without much damage." "So it is exactly with the store of energy beneath an electrified cloud or between one cloud and another." "Hence no one path can be said to protect others, and the only way to protect a building with absolute completeness is to enclose it wholly in metal; an invisible cage or framework of iron wires, however, descending vertically down its salient features, with the utilisation of any metal in its construction suffices for all practical purposes unless the building is a powder magazine."

Architectural considerations prevent the adoption of such a method in its entirety for ordinary buildings. There is no doubt however that practically perfect protection may be assured by a judicious modification of the existing practice of erecting single lightning rods, especially in the case of extensive and lofty buildings that project well above the surrounding structures or that stand isolated in the open country.

The single rods are doubtless the relic of the fallacy which was first dispelled by LODGE at the Bath meeting of the British Association in 1888, that there was a certain space beneath a lightning conductor which was shielded by it from harm. On the Continent we still find numerous iron rods carried five or even six metres above the roof, but their actual value is really on account of their number and that they are all joined together by a horizontal conductor, and their excessive height is probably useless.

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* See L.R.C. Report as to characteristics of lightning.

* *Modern Lightning Conductors*, 2nd edition, 1910. (London: Crosby Lockwood & Son.)

A much better shielding effect would be obtained by running a horizontal cable fitted with vertical barbs all round and across the ridge of the roof.

The author has carried out this principle in a modified form in many buildings, using a triangular malleable iron casting which is furnished with a spike and is attached to the cable by means of a special lead joint, the lead being squeezed into a recess. This horizontal cable runs along the ridges of the roofs and is connected at intervals to the rain-water gutters, which with the rain-water pipes make the framework of a sort of cage, and in very large buildings several independent down conductors are run from the ridge to the earth. To complete the modified cage formation, a horizontal cable is carried right round the building and interconnected with the down conductors and all the rain-water and other pipes, and so to earth. There is nothing unsightly in this method and it enables much smaller conductors to be used than would be possible if there were not so many separate paths for the flash to follow. Either iron or copper rod or cable can be employed. The usual size is seven strands of ⅛ in. diameter or about ⅜ in. exterior diameter. At New Scotland Yard copper was first employed, but for the extension iron cable was erected about five years ago, and the zinc protection shows wear in only a very few places, which have been painted and copper substituted where the cable has been attacked by the sulphur fumes of the chimneys.

(To be concluded.)

EXCAVATIONS AT CORBRIDGE.

By Mr. W. H. Knowles, F.S.A., Hon. Secretary of the Corbridge Excavation Fund.

The site of Roman Corbridge is now being systematically excavated under the supervision of an Executive Committee formed for the purpose in 1900, of which his Grace the Duke of Northumberland, K.G., F.S.A., is president.

Though not on the line of the murus, Corstopitum owes its importance to, and no doubt acted as a supply base for, the soldiers who garrisoned the wall. It lies immediately to the west of the village of Corbridge, on the north bank of the Tyne, at a point where a Roman bridge—half a mile west of that now in use—carried Dere or Watling Street across the river.

By the aid of the foundations which have been uncovered, an idea of the plan of the place, the direction of the streets, and the character of the buildings has been disclosed. These incline to the arrangement common to a civil community more so than to that of an ordinary military post. They reveal, indeed, a city with a considerable cosmopolitan population, living a life of wealth and luxury, although evidence of the vicissitudes undergone by its people is visible in marks of destruction and reparation upon many of its buildings.

On the rising ground to the north-east of the bridge is a large and important private residence which has been many times altered and extended. In its latest stage it comprised a series of eight apartments arranged between two corridors, and returned at both ends towards the south. The floors of various dates are of opus signinum, with the usual quarter-round fillet at the junction with the wall. The south corridor was warmed by a pillared hypocaust below the floor, formed of stone pilæ. It was divided midway in its length by a door the threshold of which was grooved for jamb stones and holed for the door pivots. On the north an enclosed courtyard was approached from the street proceeding northwards from the bridge. The courtyard was paved with cobbles, and contained an onamental cistern 12 ft. by 8 ft., finished on the sides with a moulded stone coping and further enclosed by an opus signinum border. In it was found a sculptured lion and stag, which is worked upon part of the moulded coping.

On the plateau to the north, and it may be somewhat in the centre of the city, massive and important buildings were encountered. These bordered on a street about 36 ft. in width, of three different levels, with corresponding drains and gutter stones.

On the north side of the street is a fountain with a platform raised 2 ft. above the street level. It has a frontage of 19 ft., and is six-sided—two, the east and west, being about 8 ft., and the north and canted sides about 7 ft. 6 in. in length. On either side it is flanked by large square pedestals, and in front of it is a trough or cistern. The platform was enclosed by a low screen having a moulded base course grooved on the top to receive sculptured panels separated by projecting pilasters. Possibly, from a mask or other feature in the panels, the water spurted into the trough below, from which the populace drew their supplies of water; whether statues adorned the pedestals, or whether the structure served the purpose of a shrine or rostrum, must remain a matter of conjecture.

Two granaries have been discovered and remain open to view; they are of substantial and damp-proof construction and are larger but similar to those found in Roman camps, where, however, they usually occur singly, and not in the double form adopted at Corstopitum, South Shields, and Borcovicium. That these buildings were used as store places for grain is demonstrated by the discovery of wheat in this type of building at Ribchester and elsewhere.

The west granary was first erected. It measures on the interior 92 ft. 6 in. by 23 ft. 6 in., and is enclosed by massive walls strengthened on three sides by stout buttresses, the south end towards the road being occupied by the entrance door and loading platform. The walling is of rubble concrete faced on both sides with good ashlar masonry in courses. The floor, with the object of keeping the goods stored thereon free from damp, was constructed about 2 ft. 4 in. above the ground level and was formed with flags 4 in. in thickness, carried on parallel dwarf walls placed longitudinally, the channels formed between them being supplied with an effective current of fresh air by cross channels placed opposite to the ventilating openings in the outer walls.

The east granary is a little shorter but wider, and divided down the middle by a series of pillars, the base stones of which remain. Each granary had a portico of four columns projecting from the south front.

A building of exceptional dimensions and of excellent masonry was the forum. The structure seems to have been that of a forum or large store, and comprises a number of chambers arranged about a quadrangle measuring on the exterior about 220 ft. The walls are formed of unusually large stones, with rock facing on both sides of all the walling. The south and west ranges are divided into apartments about 20 ft. by 17 ft., those on the west side opening into the quadrangle, and those in the south on to the street. In the middle of the south range is the entrance to the interior of the quadrangle. The east range seems to have been undivided and was accessible from the quadrangle. The north range, if ever completed, has been altogether robbed of its masonry and its details difficult to determine.

The animal remains included specimens of red deer, sheep, pig, dog, duck, goose, grouse, and partridge; also the Bos taurus, var. Longifrons, is well represented, and the remains show that it was liable to a great degree of variation. In certain cases the animals could not have been much less in size than the present-day shorthorn, though the majority were about the size of the Chillinghams of the present time.

Several buildings of an industrial character have been discovered, also an exceptional quantity of pottery, articles in bronze and other metals, and numerous coins, including a remarkable find of forty-eight gold pieces between the inclusive date 370-85.

THE NEW ROOF OF GLASGOW CATHEDRAL.

The re-roofing of the choir of the cathedral, which was so much needed, has now been all but completed. The large scaffold which supported the electric crane and enabled the workmen to ascend and descend has been removed, and all that now remains to be done is to place in position the ornamental work at present in the hands of the carvers. When this has been done the new roof will be a very great improvement on the old. Externally, there is practically no difference in its appearance except that the covering is of copper instead of lead. Already its colour has begun to tone down under the atmosphere of the city, and the saving in weight by substituting the copper for lead is considerable. This is a relief to the old walls; but, although it amounts to many tons, it is slight compared with the severe strain which has been removed by the introduction of the new, absolutely rigid roof, in which all the old oak good enough has been re-used, and the whole strengthened by a well-designed steel truss supplemented by steel purlins and iron longitudinal ties at the wall heads.

The oak lining of the inside of the roof is very similar in form to that of the plaster vault of 1824, removed last year, but, in addition to its moulded ribs, it will be decorated by a series of carved bosses at the intersections of the various ribs, while the main ribs will carry angel figures with scrolls just above the wall heads. The centre row of nine carved bosses will illustrate the life of Christ, while the north and south parallel rows will be decorated by shields, with symbols bearing on the same great theme. The intersections of each of the diagonal ribs will also be enriched by a carved boss of foliage, so that the whole will form one of the richest roofs of timber of this period.

The old oak which has been re-used is very hard, and of a beautiful rich brown colour. It is interesting to speculate how old some of these trees must have been when they were felled in the thirteenth century; their sapling days must stretch away back to the time of St. Mungo's ministry here, to the dawn of history in Scotland.

The roofs of the north and south transepts are now receiving attention, and the scaffolding which was removed from the choir is being erected along the north wall of the nave, so that the same process of restoration may be applied there also. The ancient form of the roof is not known, but it may have been somewhat similar to that now over the choir. Here there will be a field for the delineation of Old Testament history as a parallel to that of the New which will shortly adorn the choir.

This work is perhaps taking longer than some people imagined it should, but it is necessary in operations of this kind to hasten slowly; and the public, who may have been a little impatient to see the work completed, may rest assured that it is being done in a thoroughly efficient manner by His Majesty's Office of Works, so that the roofs may be worthy of the walls which they surmount, and as permanent.

CALCULATIONS FOR RETAINING WALLS.

THE calculations necessary in designing retaining walls of any description are generally thought to be rather involved. It is proposed to show how anyone with an elementary knowledge of arithmetic may calculate the size of a wall for any position required.

It will be convenient to consider first ordinary fence-walls—that is, walls which may fail owing to the pressure of the wind. Fig. 1 represents such a wall 10 feet in height.

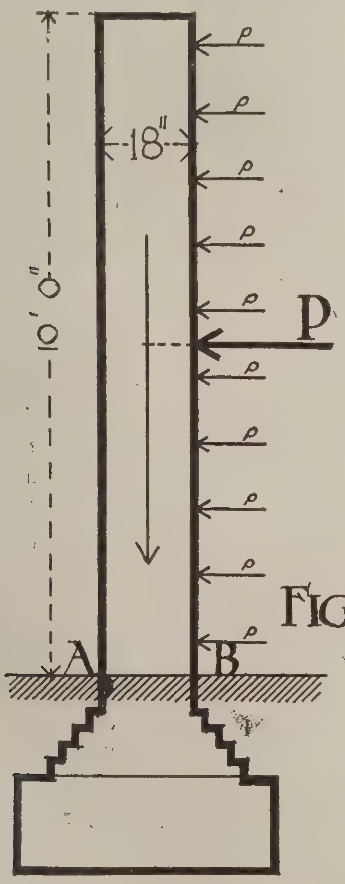

FIG 1.

The wall is subject to wind-pressure on either side, but it will be sufficient to consider the wind as acting on one side only, as the same reasoning may be applied to both cases.

1.—*The Force of the Wind.*

The wind-pressure is p pounds per square foot, and is assumed to be uniformly distributed over the height of the wall.

This assumption is not quite correct, as the wind does not travel so quickly at the ground level as at some distance above the ground, the earth having a retarding effect.

The student will, of course, understand the use of letters in the place of figures. As, for instance, when we say the wind-pressure is p pounds per square foot we use the letter p in the place of the actual figure representing the pressure, and, as the letter stands for any number, the arguments, results obtained, &c., will be for any pressure.

Thus when we obtain by the use of several letters in this way an expression or collection of letters representing figures, as the result of our argument we are able to say that this expression or formula will suit any case, and by substituting the particular numbers and values required for the letters representing them we are able to obtain the result for that particular case.

The wind-pressure for various heights and lengths of wall-surface are given in Table I.

Now if we take a portion of the wall 1 foot long it will be evident that the pressure upon every foot of height in this portion will be p pounds, and as the wall is 10 feet in height the pressure on every one of the 10 feet will be p pounds. The wall may be marked in sections 1 foot high, and an arrow representing p pounds placed at the centre of each division as fig. 1.

TABLE I.

Wind-pressures in pounds per super. foot of Plane Surface of Walls in Exposed Positions.—(Adams.)*

Height of Wall,	Length of Wall in Feet.			
	5.	10.	20.	50.
Up to 5 feet	18.4	17.0	15.6	13·9
Above 5 feet and below 10 feet	23.0	21.1	19.5	17.4
,, 10 ,, ,, 20 ,,	28.7	26.4	24.3	21.7
,, 20 ,, ,, 50 ,,	38.4	35.4	32.5	29.1
,, 50 ,, ,, 100 ,,	48.0	44.2	40.7	36.4
,, 100 ,, ,, 150 ,,	54.6	50.3	46.3	41.4

2.—*The Moment of a Force.*

A slight digression must now be allowed. Our readers will all have either seen or read of sailors turning a windlass. Now the sailor knows that he can turn more easily if he pushes at the end of his pole, as at A, fig. 2, than if he worked further towards the centre as at B; in other words the effect on the windlass C depends upon the distance he is

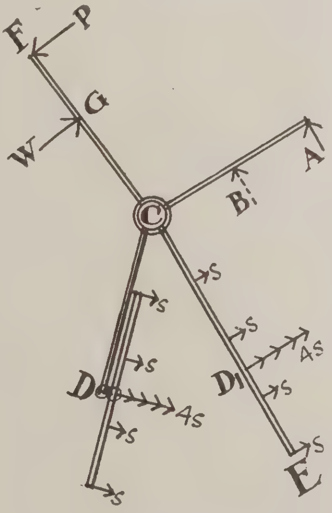

FIG 2.

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* In protected positions the values of p must depend upon the amount of protection afforded, and those given may be reduced in some cases by as much as 50 per cent. For such ordinary cases it will be found practicable to make the thickness of a common-brick fence wall built in lime mortar one-ninth of its height. The thickness adopted must not be less than this, and, as cutting the bricks would weaken the wall, the next "brick size" must be taken.

away from it, and also, of course, his own strength. His strength (P) multiplied by his distance from the windlass (AC) is the measure of his turning capacity, and is called the "*Moment of the force P, about the point C.*"

Suppose that at the end of another pole—CD—we have a rope which is fastened to the centre of a loose pole upon which four sailormen—S, S, S, S—are pulling, their turning power or moment about C will be the sum of their strengths multiplied by CD. The effect upon the pole CD would be exactly the same if the four sailormen all pulled on the rope fastened to the pole at D. This is repeated in the longer arm CE, and the moment will be S+S+S+S=4S multiplied by CD_1 ; 4S may therefore be considered as acting at D_1 as shown.

3.—*The Overturning Effect of the Wind.*

In fig. 1 all the little forces p may be added together, and one force substituted at their centre and called P.

Then the sum of the moments of p about any point will be the same as the moment of P about that point.

P is the name of our sailorman, AB is the windlass; and the distance he is away from the windlass, or the length of the "lever arm," is $\frac{h}{2}$ (where h = the height of the wall). The overturning effect of P with regard to the joint AB will be, then, $P \times \frac{h}{2}$.

This "moment," containing two different kinds of measurement (feet and pounds) is measured by both, and expressed in "foot-pounds," "foot-tons," "inch-pounds," &c.

4.—*The Weight of the Wall.*

Fig. 3 represents the portion of the wall above the ground line, AB being enlarged so as to make the working clearer.

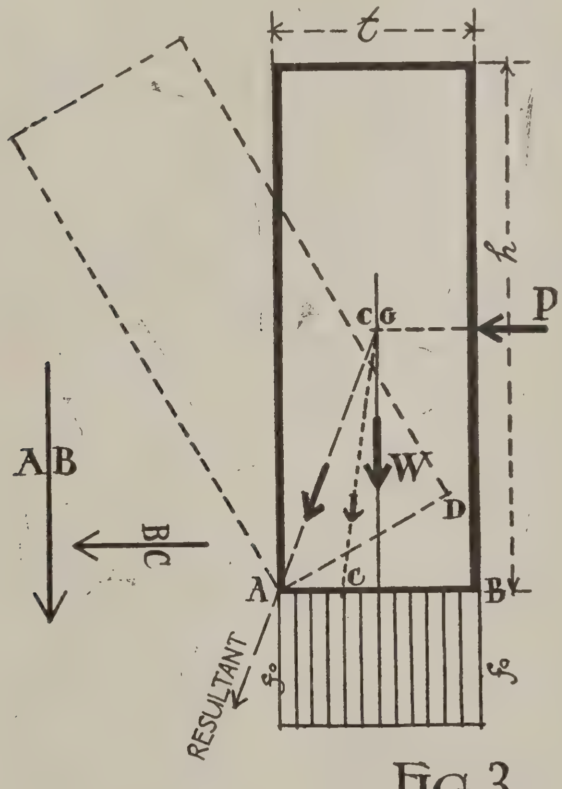

FIG. 3

If this wall had been constructed of some very light material—as hay or straw, for instance—it would have very easily been blown over. It depends upon its weight, therefore, for its stability. Now the weight of an object is a force acting vertically downwards through its centre of gravity.

The centre of gravity of a body is a point such that, if the object were suspended by a cord fastened to that point it would remain at rest. In regular shapes the point is at the centre of the shape, provided the material be of uniform density. For example, the centre of gravity of this sheet of paper is at its centre of area.

In the same way the weight of the wall may be considered as a force acting vertically downwards through its centre of gravity CG, as shown in fig. 3.

5.—*The Stress on a Joint due to the Weight of the Wall.*

The joint AB will be required to support the weight of the wall above it, and therefore must be of such strength that it will not be crushed by this weight. As different materials resist crushing to different extents their resistances are compared by taking a super foot of each and tabulating the loads required to crush this area of each.

Then as these loads have been obtained upon picked pieces of the material or carefully prepared joints, &c., the results thus obtained must be considerably reduced before being taken as the actual resistance to crushing of any actual piece of work; and as it is impossible to foresee the actual load coming upon any piece of work, owing to unequal settlement, &c., and, as the workmanship may only be calculated upon as being of the average standard, these loads must be again reduced.

In practice, instead of reducing the loads in this way the "crushing load," found by experiment, is divided by a number called the "factor of safety," which varies for different materials and different cases.

The load thus obtained is called the "safe load," and if it is upon the unit area—per square foot, per square inch, &c.—it is termed the "safe stress." (*See* Table II.)

In fig. 1 the load on AB = length × breadth × height (all in feet) × weight per cubic foot of the material.

$$= 1' \times 1'.5 \times 10' \times 1 \text{ cwt.} = 15 \text{ cwts.}$$
$$= \text{load on a joint } 1' \times 1'.5.$$
$$= \text{load on } 1'.5 \text{ square feet.}$$
$$\therefore \text{Stress per square foot } f_0.$$
$$= \frac{15 \text{ cwts.}}{1'.5 \text{ square feet}} = 10 \text{ cwts.} = \tfrac{1}{2} \text{ ton.}$$

We can represent this stress (f_0) as in fig. 3, by drawing a line parallel to AB at a distance of half a ton to some scale, say one ton to 1 inch, then f_0 will be ½ inch, and the stress f_0 may be measured at any point in AB and will be half a ton per square foot.

Table II.

Average Compressive Strengths and Weights of Materials.

Material.	Safe Dead Load per Superficial Foot.	Factor of Safety.	Weight in Pounds per Cubic Foot.
	Tons.		Pounds.
Granite masonry . . .	15	20	160
Portland and hard limestone	15	15	140
Sandstone well bedded .	12	10	130
Blue brick in cement . .	9	8	120
Common brick in cement .	6	5	115
Do. in lias lime mortar .	5	4	112
Do. in grey lime mortar .	3	4	112
Portland cement concrete (1 to 4) . . .	14	7	130
Do. do. (1 to 6) . .	10	7	130
Do. do. (1 to 8) . .	7	7	130
Gravel and natural-compact earth . . .	2	—	112
Made ground well rammed in layers . . .	1	—	110

6.—*The Distribution of the Stress.*

It follows that the distribution of the stress is uniform over the joint AB. The crushing at A is the same as at B or any intermediate point.

(*To be continued.*)

THE EARLY STAGES OF A TOWN PLANNING SCHEME.*

I LITTLE thought that when I became Clerk to my Council upon the formation of the District in the year 1904 they would be the first Urban District Council to take action in so important a matter as Town Planning, and I certainly did not, when the discussion took place at the Conference held at Ilfracombe last year, anticipate that the burden of introducing the subject this year would fall to my lot.

My Council, however, has been the first Urban District Council to obtain authority from the Local Government Board to prepare a town planning scheme, although the

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* A Paper read by Mr. Edmund R. Abbott, solicitor and clerk to the Urban District Council of Ruislip-Northwood, at the annual conference of Urban District Councils of England and Wales at the Guildhall, London.

Corporation of Birmingham had previously obtained such authority in respect of two areas.

Before proceeding further perhaps I ought to say a few words as to the nature of my Council's district. It consists of 6,585 acres of land, and a population at the recent census of 6,217, with a rateable value of £52,000, and a net assessable value of £46,000. The general district rate is 3*s.* 10*d.* in the £. The whole of the district is within fifteen miles of London.

I suppose that in taking up the matter of town planning, the first question which will present itself to members of Councils and their officers is whether their district is one in which any action under Part II. of the Housing and Town Planning Act, 1909, can be properly taken at all. If the district is practically all built over, then probably little can be done. This part of the Act (Section 54) relates to the making of town planning schemes as respects any land which is in course of development or appears likely to be used for building purposes. If there is no land of this description, it seems useless to take action, as the Local Government Board have only power (under Section 54, s.-s. 3) to include in the area of a scheme land already built upon, or land not likely to be used for building purposes if it is made to appear to be so situated with respect to land likely to be used for building purposes that it ought to be included in any town planning scheme made with respect to the last-mentioned land. Therefore the necessity for a scheme will to some extent depend upon the area of land undeveloped in the area of the Council, although it must not be forgotten that a Council is quite at liberty to apply for authority to prepare a scheme for land outside its own area (under sub-section 2). In fact, I believe in the case of Richmond this is being done for the purpose of preserving the amenity of Richmond itself.

One of the next points to consider is when is the proper time to commence action. I am strongly of opinion that no time should be lost in taking the first step, because under the Act and regulations of the Local Government Board considerable intervals must elapse between the several stages, and until actual proceedings are commenced practically nothing can be done to prevent development on lines which would not be in accordance with a town planning scheme. The first step is certainly to appoint a special Committee, as there is a large amount of detail work to be done, and it is quite impossible for another Committee to attend to it in conjunction with other matters. A resolution should be passed by the Council under Article 1 of the Procedure Regulations of the Local Government Board that at the expiration of a period of not less than two months the Council will consider a formal resolution to make application to the Local Government Board for authority to prepare a town planning scheme.

Now I shall assume that all those present have read Part II. of the Act and also the Memoranda and Procedure Regulations of the Local Government Board.

The area when determined by the Council is defined upon Map No. 1.

This is of vital importance, because once settled by the Council and the map deposited for inspection under Article 1 of the Regulations, the area cannot be added to. Once the Local Government Board have sanctioned the preparation of a scheme in respect of a particular area, no land can be excluded. The Conference will therefore at once see that this question of area must receive the most careful consideration at a very early stage.

The following points arose in connection with the Ruislip-Northwood scheme:

(*a*) Inclusion of land in an adjoining rural district.

(*b*) Land already built upon.

(*c*) Land alleged not to be likely to be used for building purposes.

(*d*) Land included in a scheme for the purpose, to some extent, of the amenity of neighbouring land not included in the area of the scheme.

(*e*) Land divided into numerous plots, some of which were sold, or in respect of which contracts had been entered into.

It will probably be thought at first sight to be desirable to include the whole of a Council's district in the area, but this is no light matter when it is considered that seven sets of notices have to be served upon all owners, lessees and occupiers. Moreover, it is quite likely that with regard to large areas of land fully developed, even if the Local Government Board allowed the Council to include it, nothing whatever could be done under the scheme with reference to it, and in addition considerable expense would be incurred and unnecessary trouble and annoyance caused to a large number of ratepayers whose co-operation must also be secured.

At both Birmingham and Ruislip-Northwood land forming portion of an adjoining district was included in the area which was the subject of the application to the Local Government Board. In the latter case the Rural District Council objected, and its objection was supported by the County Council. It is clear that if a case is made out the Act contemplates the inclusion of part of the area of another local authority. Ample provision is made for the "responsible authority," i.e., the authority responsible for the observance of the scheme and for the execution of any works under the scheme to be executed by a local authority, being the authority which prepares the scheme, the authority in whose area the land is situated, or for certain purposes one authority, and for certain purposes the other, or a joint body. I may say here that Urban Councils must be careful as to their neighbours if they are Rural authorities. My district abuts on the areas of three such authorities; in one case it was stated by a prominent member that the Act was not applicable to Rural areas, and in neither of the others, although practically of the same character as Ruislip-Northwood, has any action been taken at present, nor does it seem likely that it will be, at any rate for some time to come.

I would impress upon the representatives of local authorities not to be jealous of one another in this matter. Co-operation is the keynote of the Act. The particular Rural Council a portion of whose area was included took the view that town planning was in an experimental stage, and they would, perhaps, learn a little from the mistakes of others. I hope this view will not be held largely, but rather that Councils will co-operate in trying to construct the best possible schemes.

Coming to two special kinds of land, viz., a piece of land already built upon, and land not likely to be used for building purposes, it will devolve upon the local authority to make out a case to the Local Government Board that it is reasonable to include it in the scheme.

With regard to land already built on, in many districts emerging from the rural to the urban stage will be found old cottages, farmhouses and property of that nature, and large houses with grounds of several acres which have gradually been built round. All these, while they exist in their present state, probably add picturesqueness and amenity to the locality, but once development begins they may have an opposite effect, and in the case of subsequent sale may form serious blots upon the scheme.

In passing, I may remark that these expressions—land likely or not likely to be used for building purposes—occurring in the Act are most difficult to construe. First, "Land not likely to be used for building purposes." Can it be said that such land exists in an urban district? Can it be said that such land exists within, say, 20 or 25 miles of London, or 10 miles of any large towns?

In most districts which are contemplating taking powers under the Act there is some actual development. I mean that an estate has been plotted and a few plots sold with houses already erected here and there, and development is going on at the present time. It is no good including land of this character, unless the authority is prepared to deal with it in some way, and there may be 40, 50, or more owners to deal with, and fear of compensation. I think, however, it is best to include such land, and, after all, a little negotiation may produce good results, especially remembering that, if it is made to appear to the Local Government Board that it is reasonable, there is no compensation in respect of the limitation of the number of houses to the acre, and this is perhaps the most important provision of the whole Act.

Another point, as regards area, is that where some land is omitted and other land near by included, it at once raises the question why this is done. The reason may be perfectly good, but it will raise suspicion in some minds. In the Ruislip-Northwood case the question was definitely raised that some land had been included for the purpose of getting over a point of law under an existing Act of Parliament.

The first sub-section of Section 54 expressly authorises the inclusion of land for the purpose of the amenity and convenience of neighbouring lands not necessarily in the area of the scheme. For instance, land subject to restrictive covenants may adjoin unrestricted land. The whole of the restricted land may be developed and the owners may live more or less in dread of what may happen to the unrestricted land. To prevent this is one of the objects of the Act.

I need hardly say that several of the above points were not present to the minds of the Council or their officers when first they were dealing with the question of area, and it is to some extent only in the light of subsequent events that I have been able to put them before the Conference.

The area fixed by the Council was 5,859 acres out of the 6,585 acres comprising the Council's district, and, in addition, 63 acres in the adjoining Rural district, making a total of 5,922 acres.

The area having been settled, Article II. comes into force. This provides for service of notice of the proposal to apply for authority to prepare a scheme being given within seven days after the Council have decided to consider such proposal upon any Council interested in the land in the proposed area. There is no doubt that this would apply to the Council of the area outside the Council's district already referred to, a portion of whose area is included in the scheme, but does it apply to any other Council owning, say, a cemetery or sewage farm within the proposed area? I thought it safest to serve a Council in that position. The next step was to obtain the names of the owners, lessees and occupiers of the land included in the area. They are probably not known with any degree of accuracy, and what is really involved is the preparation of a Parliamentary Book of Reference.

Acting on the precedent of the Standing Orders of Parliament, I did not intend to serve notice on any occupier of property whose interest was less than that of a quarterly tenant, although the names of most of them had been obtained. As a matter of precaution I sought the advice of the Local Government Board, who informed me that they did not consider that the analogy of the Standing Orders of Parliament must be acted upon. I thereupon made an application to the Board, under Article 34, to dispense with the service of notices on occupiers whose interest was less than that of a quarterly tenant, and I received an Order of the Board dispensing with such service, not only of the intention to apply for authority to prepare a scheme, but throughout the proceedings on the scheme. This will, of course, save a large amount of time, trouble, and expense. Article I. of the regulations says that the notice "shall describe the land proposed to be included in the scheme." Now it is not easy to describe about 6,000 acres of land, with its boundaries so as to make the description intelligible; it therefore seemed to the Council that the only course was to annex a plan to each notice, and this was decided upon. Copies of Map No. 1 on the smaller scale of 6 ins. to the mile were lithographed and coloured in a similar way to Map No. 1. The notices were prepared, plans annexed, and served, and an advertisement inserted in a local paper giving notice of the intention of the Council to apply for authority to prepare the scheme, and of the deposit of the Map No. 1 at the Council office.

Now came an extra formality in order to comply with Article I. (*d*), which says that a certified copy of Map No. 1 is to be furnished to the Council of any borough or urban or rural district within which any part of the land proposed to be included in the scheme is comprised. Another copy of Map No. 1 had therefore to be prepared—we were advised that, although only 63 acres of land in the adjoining district was included, we must give a copy of the *whole* of Map No. 1—and this was accordingly done, although it involved the use of about twenty Ordnance sheets.

Article III. provides that at least one conference with landowners must be held before the application to the Local Government Board is made, and fourteen days' previous notice must be given. In order to save trouble and expense the notices of this conference were despatched with the notice of the intention to apply to the Local Government Board for authority to prepare the scheme. The conference was duly held, and a large number of persons interested attended. The Chairman of the Council presided, and the Chairman of the Town Planning Committee explained the procedure to be adopted.

Pending all these proceedings, Map No. 2 was in course of preparation.

The particulars that are about to be shown on Map No. 2 are set out in Articles IV. (b) and VI. They are as follows:—(1) Land in Council's area; (2) land in area of any other Council; (3) land already built upon; (4) land not likely to be used for building purposes; (5) positions of any buildings erected or in course of erection on the land; (6) lines and widths of proposed principal roads, and their connection with existing roads; (7) sewers, gas, water, and electric mains; (8) roads or ways to be diverted or stopped up; (9) areas for open spaces or special purposes. Application was made to the Local Government Board for permission to combine in the copy of Map No. 2, which has to be sent to the Local Government Board, the information given upon Map No. 1, thus saving the cost of one map. This application was granted.

In connection with Map No. 2, two points have been raised upon the regulations: (1) As to showing suggested roads; (2) as to provision as to sewerage. Obviously there is not very much difficulty in fixing the main through roads, and these must be connected with all railway stations and centres of population; hence some other roads will fall into the scheme almost automatically. It must be remembered that this is only a rough outline of what is proposed, and does not bind the Council absolutely. As regards sewage disposal and sewerage, a most important matter, the surveyor to any Council will probably be able to tell very quickly whether the existing works will be available, and, roughly, what may be necessary, and this is all that is required.

The next step was to prepare the statement under Articles VIII. and X. of the regulations, to be sent to the Local Government Board with the application, and here the most difficult point to deal with is "the reason for including in the scheme land not likely to be used for building purposes." The definition in the Act of "land likely to be used for building purposes" is extremely wide, and ultimately it appeared that the only lands in the whole area which came within the definition of land not likely to be used for building purposes were those occupied by the actual railway lines and works of the various railway companies.

This, of course, will differ in different districts. Map No. 2 is not a document open to public inspection, although it is open to the inspection of persons interested in the scheme. It must be borne in mind that it merely contains the ideas (not the scheme itself) of the promoters as to what they have in view. In fact, its intention appears to be to show that the Council have a *primâ facie* case in accordance with the Act, and that they have really *bonâ fide* considered their proposals.

With regard to Map No. 3, it is a one-inch scale map, and has to show by boundary lines the area within five miles from any part of the Council's district. Another point is the question of the estimate of cost. Obviously, and admittedly by the regulations, this can only be approximate, and this is all that can be given.

I am of opinion that in the estimate of cost it is proper to include so far as possible the approximate amount of any compensation which is likely to be payable, and also to take credit for any sum which may be received by way of betterment if either of these can be estimated at all.

The formal resolution applying to the Local Government Board for authority to prepare the scheme was passed and duly advertised in local papers. All the documents were lodged with the Local Government Board on the day succeeding the passing of the resolution.

The date of the passing of the resolution (which is the formal application) is the most important date of all, because under Section 58, sub-section 2, "A person shall not be entitled to obtain compensation under this section on account of any building erected on or contract made or thing done with respect to land included in a scheme after the time at which the application for authority to prepare a scheme was made or after such other time as the Local Government Board may fix for the purpose."

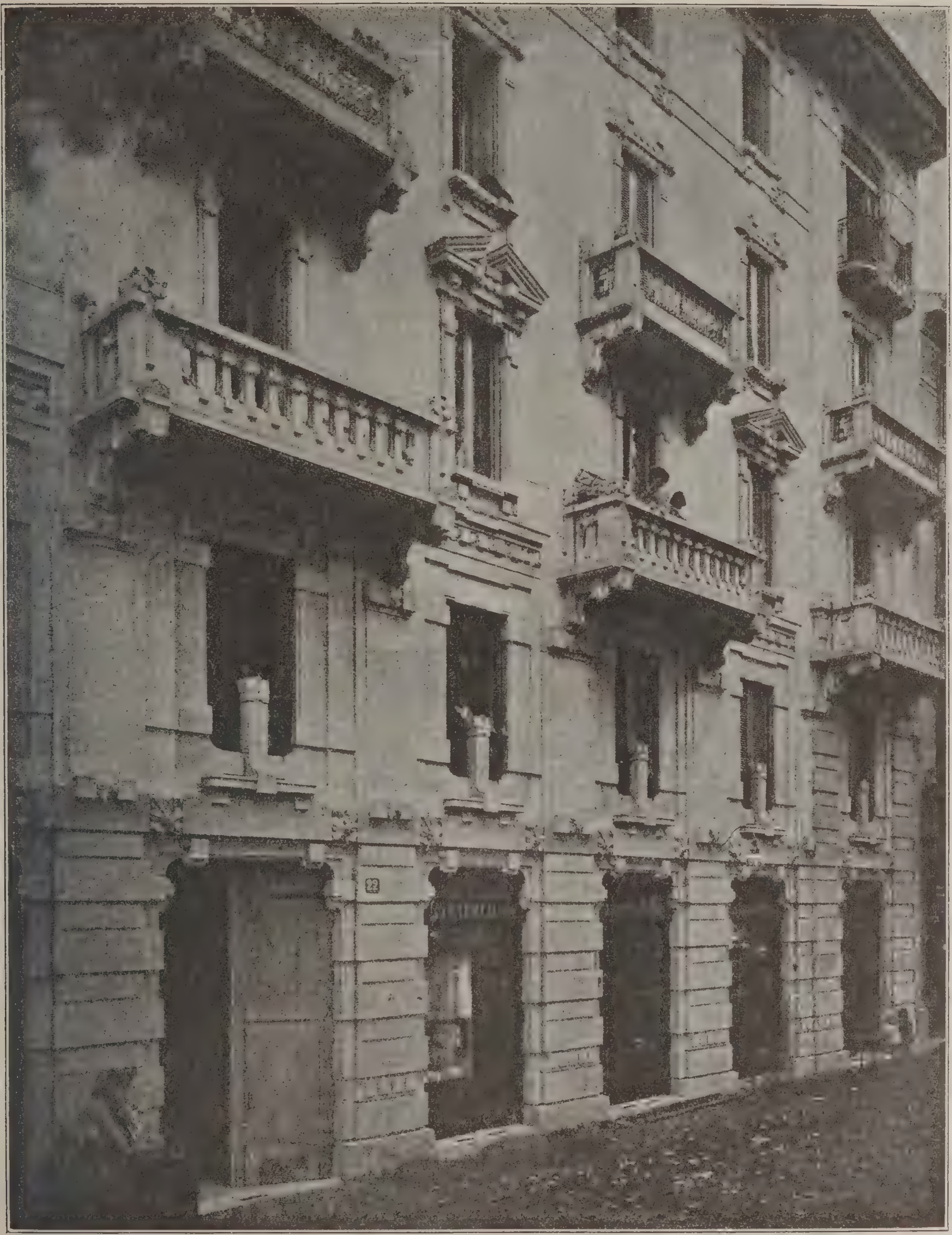
The result of this is that every road made, every house built or other work done upon the land will be subject to the scheme when made, and the Council have as from the date of the application control over the development of the area of the scheme so far as the Local Government Board authorises its inclusion.

Within one month of the application an inquiry was held by the Local Government Board into the matter of the application. There were some six objectors—the County Council of the county in which the outside area was included, the Rural District Council of that area, and four landowners, who objected to their property being included in the area of the scheme. The County Council's representative contended that the county was the natural boundary for all purposes and should not be interfered with. The Rural District Council opposed generally on the ground that it was inconvenient to have two authorities with rights in one area.

The objections by landowners were only in respect of small portions of the proposed area, and were rather on the lines of the ultimate user of the land than its actual inclusion in the area of the scheme. The object of the inquiry was stated by the Inspector to be whether there should be a scheme or not, and, if so, what the area was to be. He absolutely declined to go into the question of what was to be done on or in connection with the land under the scheme. It is quite clear that if a landowner desires to be uncontrolled in his development he will make a great effort to get his land ex-

MODERN EUROPEAN ARCHITECTURE.

ITALY.



[From *La Construction Moderne.*

RESIDENTIAL FLATS AT MILAN.—Signor J. N. Urata, Architect.

cluded from the area. It was urged by counsel, on behalf of one landowner, that the burden of proof was upon the Council to show why land should be included, but my view is that if the land falls within Section 54, sub-section 1, the burden is upon the landowner, and I think in most cases it will be difficult for him to convince the Local Government Board that he ought to be excluded.

As a result of my Council's application, authority was given to prepare a scheme in respect of the whole of the area included in such application, with the exception of a small area of about 15 acres which the landowner stated he had no intention of developing, and, moreover, which formed part of a large estate in an adjoining district. This leaves about 5,907 acres to be planned.

My Council were quite satisfied with the result of their application, and I venture to think that this result was also satisfactory as a guide to other authorities, as the following principles have been established, namely:—That the Local Government Board are quite prepared in proper cases to authorise the preparation of schemes, including:—

(1) Land outside the area of the Council—this has been already done both at Birmingham and Ruislip-Northwood.

(2) Land already built upon.

(3) Land alleged not to be likely to be used for building purposes (*e.g.*, railways).

(4) Land for the purpose of securing the amenity of lands outside the area of the scheme.

The authority having been given, notice thereof has to be served upon all lessees, owners, and occupiers of the land included in and excluded from the scheme.

The actual preparation of the scheme must now be taken in hand, and the first step to be taken is to prepare Map No. 4, which must show in different colours the boundaries of the properties of the various landowners.

Of course it is desirable to secure the co-operation of landowners at this stage, and accordingly with the last-mentioned notice my Council enclosed a letter enquiring whether the landowners had any scheme of development in view, and, if so, desired them to furnish particulars, as naturally a Council would prefer that this should be done by the landowners rather than that it should devolve upon the Council to really plan the whole area.

My Council have already received several schemes of development from landowners, and they are now actively engaged in considering them. Immediately any such scheme is received a fresh notice is sent to adjoining owners asking for their schemes (if any), in order that their co-operation may be secured.

It is obvious that a scheme dealing with so large an area must necessarily take several months to prepare, and pending the preparation several landowners desire to proceed with selling their land. It seems that the only course to adopt is to enter into an agreement with the landowner, which will be subsequently scheduled to the scheme, and if no actual relaxation of bye-laws is required there is no reason why the landowner should not proceed with his sale and development directly the agreement is executed.

The agreement would probably deal with the following matters:—

(*a*) The area of land belonging to the landowner.
(*b*) The number of houses to the acre.
(*c*) Through roads.
(*d*) Provision of open spaces.
(*e*) Class of buildings.
(*f*) Building lines.
(*g*) Prohibition of advertisement hoardings and bill posting.
(*h*) Proportion of land occupied by buildings to curtilage.
(*i*) Compensation.
(*k*) Planting and cutting down of trees.
(*l*) Height of fences or walls.

If it is desired that bye-laws should be relaxed this can only be done by the scheme itself; a Council has no power to relax bye-laws by agreement. This point is very important, and it would be well to secure by the agreement a provision for the alternative carrying out of the development in case the scheme ultimately fails to provide for such relaxation.

To show what can be done by agreement with landowners, I may mention that in the first completed agreement the landowner has agreed to give up to the Council free of cost over two acres of land out of a total of 28 for the purpose of open spaces, and in another case about seven acres out of 80 have been secured for open spaces in the same way.

Within the limits of this paper it is of course impossible to deal with all the above matters which may form the subject of an agreement and ultimately of the scheme, but I hope that many of them may receive attention during the discussion on this most important subject, particularly the question of the number of buildings to the acre, the provision of shopping centres, and the setting apart of land for special purposes.

I have refrained from suggesting the passing of any resolution by the Conference, as I gather that the object of the Executive Council in placing the matter upon the agenda in so prominent a position is in order to obtain a full discussion and to clear up difficulties (of which there are many) rather than the adoption of any definite proposals.

ROYAL SOCIETY OF ANTIQUARIES OF IRELAND.

At the annual general meeting of the Society, on January 31, the following report of the Council on the proposed Charter of Incorporation was, on the motion of Count Plunkett, seconded by Dr. Berry, unanimously adopted:—

With reference to the notice of motion given by Mr. Richard Langrishe, J.P., at the last quarterly meeting of the Society held in Kilkenny, the Council have to report that the advantage a Charter of Incorporation would confer has for many years presented itself, but, more recently, its necessity has become pressing. It was an object which the original members of the Society had always before them; and it appears to the Council that opportunity should be availed of at the present time to give effect to a matter of such importance to the progress and advancement of the Society.

It is hardly necessary to say that the important position the Society has attained to in the archæological world, and the increasing interest taken in, and importance attached to, archæological science, sufficiently indicate the necessity for this step.

The practical advantage to be obtained by a Charter is that it would enable the Society to acquire premises in its own name, and under its seal. At present the purchase, renting, or acquisition of premises has to be effected by individual members in their private capacity, and the funds of the Society have to be invested in the same unsatisfactory manner. The property of the Society, in its valuable collection of antiquities, is another item; and the ultimate provision for these objects may necessitate the preparation of a legal document, which should be perfected in the name of the Society as a Corporation, and not in the names of individuals who may at any time cease to be members.

The Council have had a draft petition prepared, and have ascertained that the cost of the fees in connection with the Charter would be about £150; and, in order to meet this cost, it is proposed that such as are willing to become signatories to the petition should contribute to the expense; and if additional funds are required, they could be obtained by suspending the publication of the extra volume for the year 1911-12; and in this way there would be no appreciable tax on the funds of the Society.

As regards the revision of the "rules," it is considered desirable that the proposed Charter should not contain anything repugnant to the "rules" as they now stand, and that as soon as the Charter is obtained, instead of the mere "rules," as they are called at present, they should be revised as "by-laws" under the Charter; and it is proposed to bring the revised "by-laws" before the Society for approval at the next general meeting after the date of the Charter.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Sirapite Plaster.

Sir,—The letter of Mr. Thomas J. Collins in your last issue is undoubtedly interesting, and is quite an innovation I think. I should have been interested to know whether the experiment was satisfactory; perhaps your correspondent can gives us this information. The amount of £4 10s. per week to "look after the job" makes the mouth water of—Your obedient servant,

An Architect's Assistant.

The Architecture of London Highways.

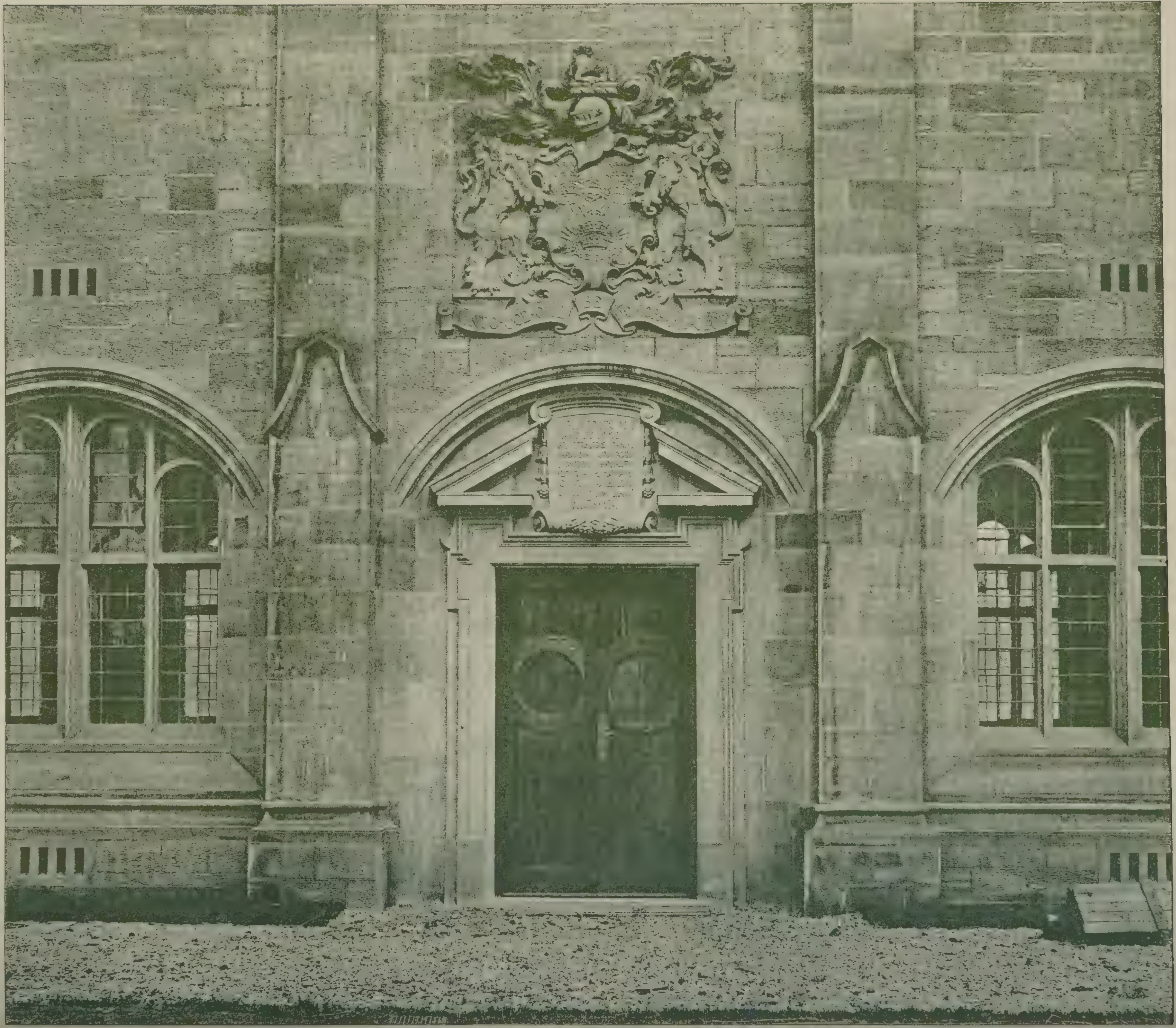
Sir,—May I crave the indulgence of a few lines in your correspondence columns to explain one or two apparent inaccuracies in my contribution on "Architecture of London Highways"? It was written about a twelvemonth ago for use within a brief period from the date of writing; but I know how deep was your grief when you found yourself compelled to hold it over for "want of space." Ah! that want of space! how it recalls the bitter plaint of many artists whose noble canvases (10 inch by 8 inch, frame included) have been rejected by the Royal Academy solely for this reason. But enough! what concern have I with disappointed artists? All my concern is that I did not avail myself of your kindly forewarning, that you were about to use my long-time pigeon-holed article, and ask your permission to revise it as necessary. But the gnawing tooth of time (to which I refer therein) apparently fed on my memory. *Hinc illae lachrymae!* With all respect,—Yours,

Viator.

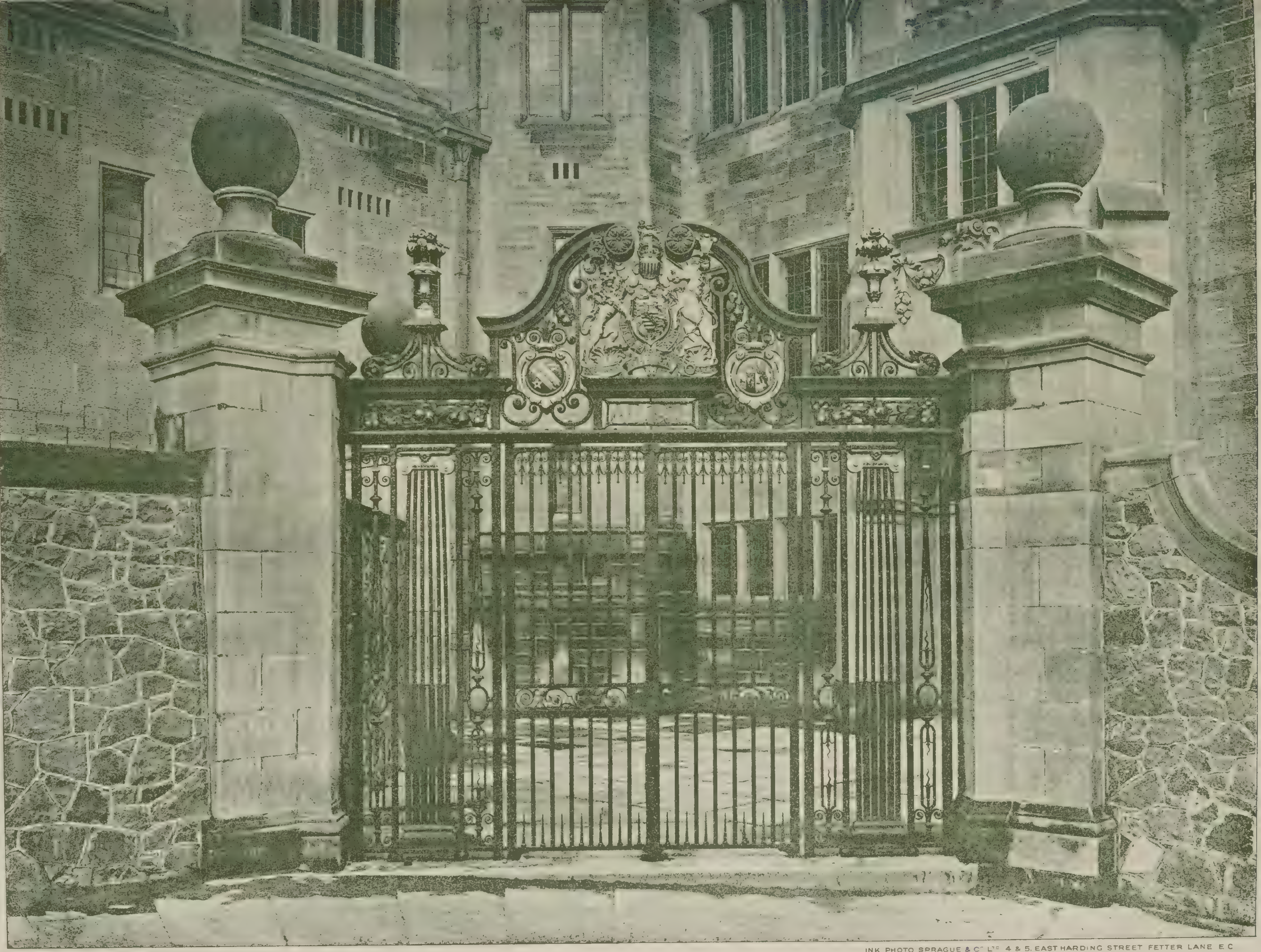
P.S.—What an interesting letter is that of Mr. T. J. Collins. But I fear in many English buildings the overhead method of plastering would not be feasible.

A faculty has been granted in the Consistory Court of York for the erection of a carved oak screen and rood at the entrance to the chancel of the church of St. Mary, Lowgate, Hull, "in memory of King Edward VII., the Peacemaker."

In the course of restoration work at the Moot Hall, Hexham, a small chamber was brought to light in the west wall of the main room, about 9 feet long, nearly 2 feet wide, and about 5 feet high. The chamber is lighted by a small north window.



ENTRANCE TO LIBRARY



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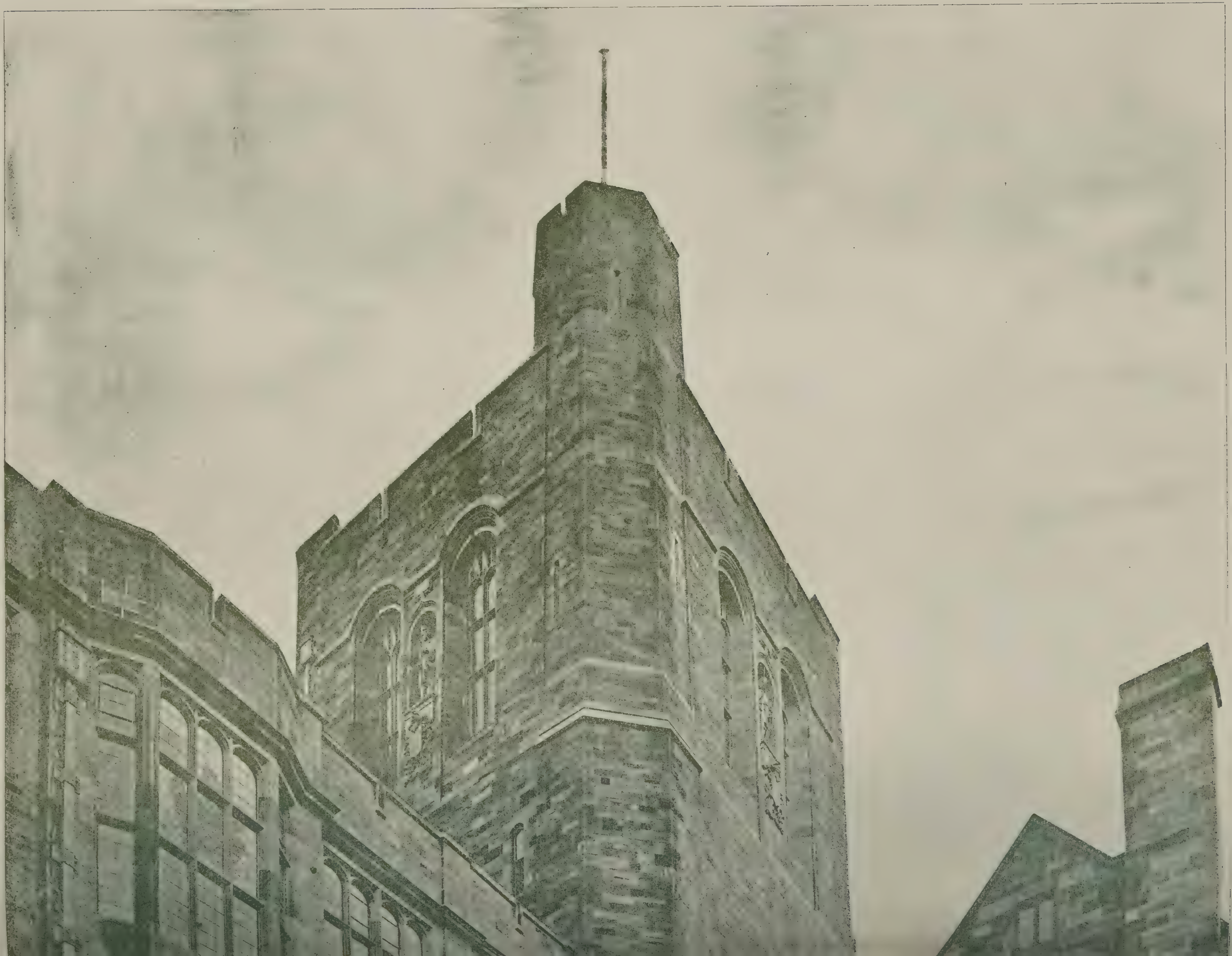
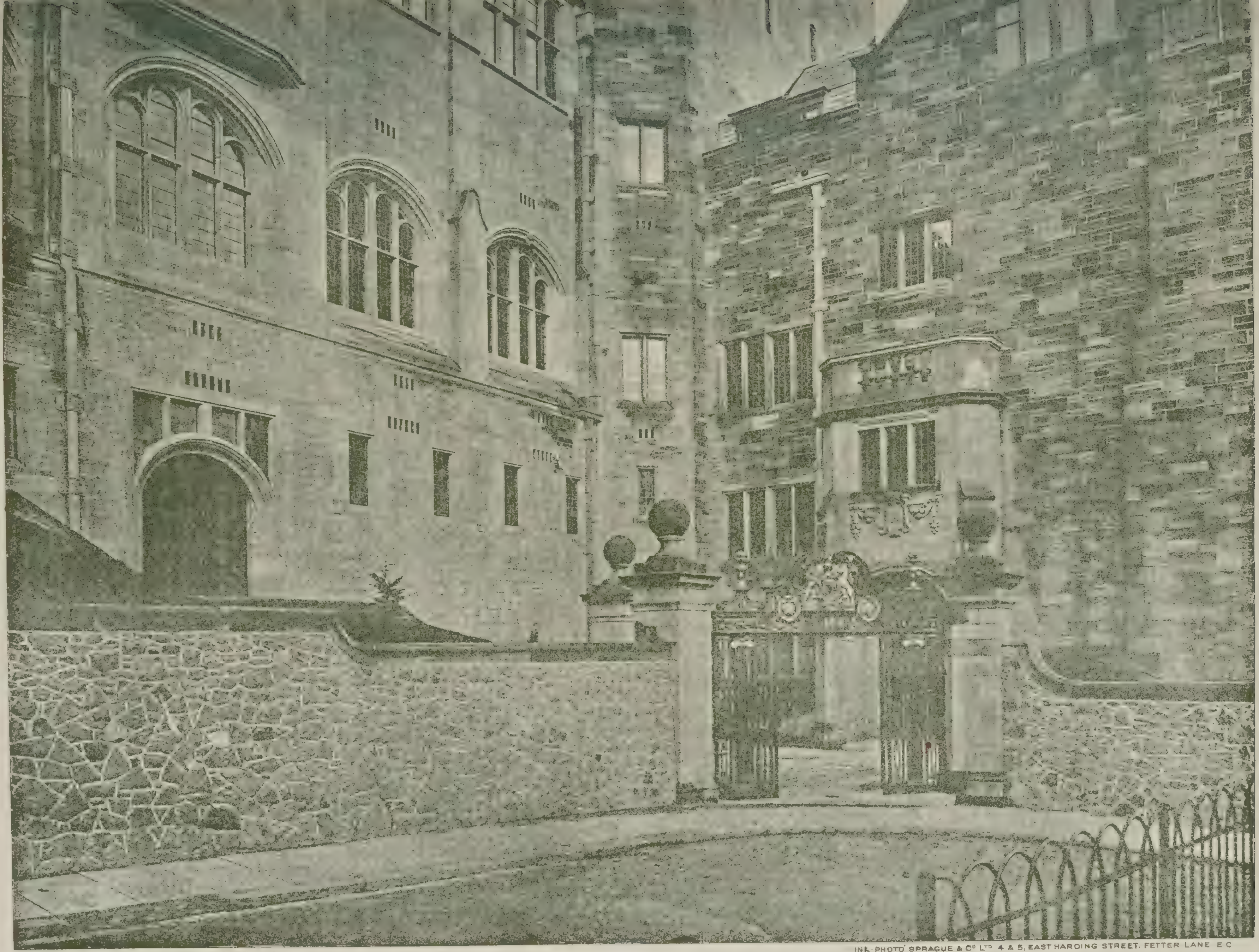
DETAIL OF GATEWAY

THE UNIVERSITY COLLEGE OF NORTH WALES, BANGOR

Mr. HENRY T. HARE, F.R.I.B.A., Architect





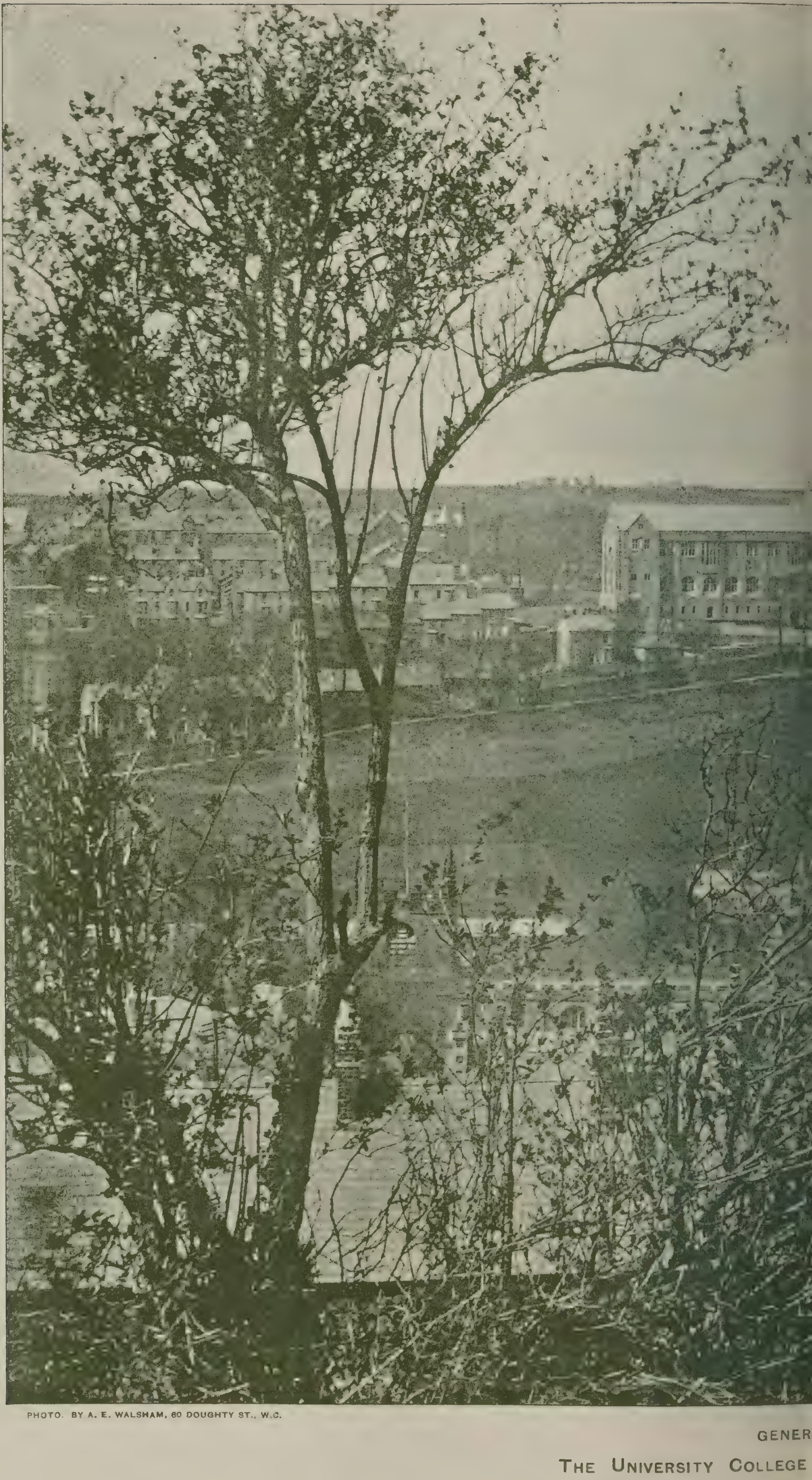


PHOTO. BY A. E. WALSHAM, 60 DOUGHTY ST., W.C.

GENER

THE UNIVERSITY COLLEGE

Mr. HENRY T. HAR

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W.

ORTH WALES, BANGOR.

I.A., Architect.

The Architect.

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FORTHCOMING EVENTS.

Saturday, July 29.

Northern Architectural Association : Students' Sketching Club.

Manchester Society of Architects : Visit to Mobberley. Leader, Mr. Isaac Taylor.

Institution of Municipal Engineers : Annual Meeting at Edinburgh.

Monday, July 31.

Royal Archæological Institute : Second half of Summer Meeting opens at Tenby.

Tuesday, August 1.

Manchester Society of Architects : Visit to new Bank Premises, Piccadilly. (Messrs. T. Worthington & Sons, architects.)

Monday, August 7.

Royal Society of Antiquaries of Ireland : Ulster meeting opens at Belfast (closes August 12).

Northern Architectural Association : Students' Sketching Club Annual Excursion.

Tuesday, August 8.

Guild of Architects' Assistants : Visit to London Opera House, Kingsway (Mr. Bertie Crewe, architect).

STUDENTS' WORK IN LONDON.

THE simultaneous exhibition of the sessional work by students at two of the architectural training schools in London naturally provokes comparison between the Architectural Association and the University College School of Architecture. The Association exists entirely for the education and improvement of architectural students, whilst at University College architecture is but a minor branch of University teaching. The latter, too, has been but lately established as an actual training school, although for several generations there have been delivered excellent lectures by eminent professors.

As the Architectural Association is the older school, and, at present, the more numerously attended, we will first consider the work there exhibited. This is in two main divisions, that of the Day School and that of the Evening School. The former is intended to provide instruction of a character to fit an embryo architect fresh from school or college to become an articled pupil in a practitioner's office with a better capability for taking advantage of his term of pupilage than if he had not received such preliminary training. The Evening School is for those who are already engaged during the day, and whilst provision is made for novices, it also forms a continuation school for those who have passed through the Day School.

In the Day School the young aspirant is taught in his first year to draw, by copying geometrical drawings of old work and modern work, as well as by making freehand drawings of carved ornament and of models. Some of the sketches of woodwork are well executed, but there is a little too much importance attached to outline and too little to shading. It is clear that from the very first students at the Association are taught and encouraged in practising smart draughtsmanship and tricky effects of pencil and brush. It is remarkable how soon in their career the young students at the Association acquire quite respectable ability in draughtsmanship, as evidenced by their vacation work in measuring and drawing old buildings. The quaint town hall at Fordwich has been measured by Mr. H. B. Tunnard and Mr. R. S. Johnson, and that at Amersham by Mr. R. S. Wallace; a barn at Harmondsworth has formed the subject of Mr. H. G. Satchell's study, and another at the Wick Farm, Headington, of Mr. H. J. Tebbutt's. The best, in our opinion, of the vacation studies, both in importance of subject and in excellence of endeavour, is a set of drawings by Mr. E. Cecil Davies, of Haunt Hill House, Weldon, Northants. An admirable feature in the study of wrought-iron work has been impressed upon the students, the representation in perspective of a piece of detail, thus impressing the importance of studying the width of strap iron, which is apt to be overlooked in a strict elevation.

In the second year of the Day School the students are allowed to make designs based upon ancient architecture, Greek, Roman, Byzantine, Mediæval, and "Traditional English Stonework." A design on modern lines is also allowed, and that of Mr. D. J. Gordon, the winner of the first prize for the session, for a cottage at Romford in tile and red brick, is quite as pretty as many of those at Gidea Park. Mr. Gordon's sketches of carved detail in pencil are good examples of shade drawing, expressive and smart, without being unduly laboured.

As usual at the Association, it is difficult to find out the names of the authors of the drawings, because space and pins are economised by covering up the right-hand bottom corners. The same economy might be obtained by covering the left-hand top corner, and the usual place of signature would then be revealed. The hanging should be entrusted to a writer of Hebrew or Chinese, or a strongly left-handed draughtsman, and then this little arrangement might come out all right. We did, however, notice a good design for the Byzantine church by Mr. Geoffry Fildes, and a noteworthy pencil shaded drawing of detail by Mr. H. Fellowes Prynne. It is, perhaps, hardly fair to criticise the plans of two-year-old architects, but those of the prize-winners for the Village Club that formed the test subject at the end of their course are deficient in safety, though prettily drawn. They, in fact, epitomise the work of the Association Day School, which in two years very creditably turns out wonderfully smart draughtsmen, but does not make architects. Not that we should expect it would or could.

In the Evening School the drawings are markedly inferior to those produced in the Day School till we come to the third-year students; but amongst those of the second year the design of Mr. F. P. Spooner for a fountain, of Mr. G. Macgregor and Mr. A. E. Maxwell for a library, and of Mr. T. F. H. White for a school memorial hall give promise for the future.

The third-year work contains some really creditable designs, notably those of Mr. A. B. Ll. Roberts, the first prize winner, whose clever drawing of a fountain is a wonderful piece of brush work in water-colour. Mr. G. W. Stuart's design is good, though of a more correct and formal type. Mr. Adrian Hardman has an excellent detail drawing of his library design, and there is also some good work by a gentleman with an illegible signature.

The students of the fourth year are sufficiently advanced to be able to design with some degree of success, Mr. H. V. C. Curtis, the first prize winner, contributing designs for a bridge and approach and for a garden pavilion that are quite good. His boathouse is, however, not so satisfactory as are designs for the same subject by other students. Mr. F. A. Crouch, the winner of the second prize, has made some good drawings, and his designs for a lamp standard and the garden pavilion are of a high quality

At University College architecture and not draughtsmanship appears to be the goal towards which students are directed, but in the work of Mr. E. Musmann, a student who is working for the degree of B.A. (Honours in Architecture) at London University, there is draughtsmanship of a calibre far exceeding in excellence anything to be seen at the Association. His study of a panel from a Burgundian carved oak door is a marvellous piece of pencil work, his studies from the life, tinted sketches of old woodwork, and his water-colour sketches have real intrinsic quality without any approach to smartness or prettiness. Mr. Musmann's measured drawings of the Ashmolean and Taylorian Institute, Oxford, are a careful and thorough study of Professor Cockerell's treatment of Greek detail that is reflected in Mr. Musmann's design for a town club-house.

For the first prize for work in the school Mr. Stanley R. Miller and Mr. Charles Voysey are bracketted equal, and their designs for a large country mansion, a free library, and a fountain evidence the tendency of the students generally to design on the lines of the eighteenth century designers in the grand manner and the Anglo-Greek of Cockerell, with some infusion of modern French neo-Grec feeling. This latter tendency is strongly shown in the work of the third prize winner, Mr. L. Douglas Meadows. Although there is a distinct leaning towards the stately Classical, if somewhat formal, type of English architectural design, it is clear that there is no compulsion on students in this direction, for Mr. S. W. Sherren affects the seventeenth century and Mr. A. Collier James the eighteenth century work of Kensington. The prize winners, as well as those who receive honourable mention, Mr. Victor Bain and Mr. T. A. Jones, all follow the Classicism of the Dilettanti period. A special prize is given to Mr. Victor Bain for his measured work.

NOTES AND COMMENTS.

As might have been expected, the London County Council have been unable to attract the *rara avis* who should possess the dual qualification of high artistic ability and a power of organisation and administration sufficient for a principal of the L.C.C. Central School of Arts and Crafts, and the Education Committee has therefore presented the following report with a view of overcoming the difficulty: The Council on February 14, 1911, authorised the employment of a full-time principal of the Central School of Arts and Crafts at a salary of 1,000*l*. a year in the place of the present part-time principal, who wishes to retire as soon as a successor can be found. In accordance with this decision an advertisement was issued, by the terms of which candidates were required to possess high qualifications as practical artists, and to produce evidence of administrative and organising ability. Forty-six candidates sent in applications with statements of their qualifications and experience. After careful examination of the statements sent in, nineteen candidates were interviewed by Sir George Frampton, R.A., the Council's art adviser, Mr. G. Clausen, R.A., Mr. Emery Walker, Professor Moira, members of the visiting committee of the L.C.C. Central School of Arts and Crafts, and the Council's officers, with the result that we were advised that no candidate satisfied the joint requirements as to artistic and administrative qualifications. It was apparent, on the one hand, that the practical artists either were not prepared to give the necessary time to the administrative duties of the post, or had not had sufficient experience for such duties. On the other hand, those candidates who had devoted themselves mainly to the business of organisation of a school of art had found the demands on their time so great that their own work as artists had suffered. We have arrived at the conclusion, therefore, that we cannot assure the Council that any single candidate has the qualifications required by the advertisement. We have considered, therefore, an alternative proposal—namely, that the difficulty should be met by the appointment of two officers—(1) a part-time principal to attend on six sessions a week, who would be solely responsible for the complete direction of the art work of the school, and (2) a full-time business manager, with the title of vice-principal, who would be responsible for all the administrative work of the school and its relations to students and manufacturers. We are of opinion that, having regard to the fact that no single candidate appeared suitable for the appointment as advertised, the object aimed at could be attained by appointing a principal with special art qualifications and a vice-principal with administrative qualifications. We have very carefully considered as to the salaries to be attached to the two positions, and we have decided to recommend that salaries of £700 a year and £600 a year should be attached to the position of principal and vice-principal respectively. Our proposals involve no additional expenditure during the current financial year, but there will be an additional expenditure of £300 in future years.

Although the bestowal of a knighthood on Mr. R. S. Lorimer may primarily be regarded as a token of appreciation of his fine work in the Chapel of the Order of the Thistle added to St. Giles's Cathedral, it is also a fit recognition of the art of architecture in Scotland as represented by a worthy exponent. Mr. Lorimer is a son of the late Professor Lorimer, of the University of Edinburgh. Born on November 4, 1864, he was educated at the Edinburgh Academy and the Edinburgh University. He entered the office of Sir Rowand Anderson as a pupil in 1885, and served with that architect for four and a half years. After travelling in England, he entered the office of the late George Frederic Bodley, R.A., where he had much experience of ecclesiastical architecture. Mr. Lorimer was with Mr. Bodley for a year and a half. Since he returned to Edinburgh he has been engaged largely on country houses and restoration work, including the restoration of Earlshall and Leuchars; the designing of a large house in Argyllshire—Ardkinglas—for Sir Andrew Noble, Bart.; the restoration of a mediæval castle in Kent for Mr. F. J. Tennant; and the restoration of Dunderawe Castle for Sir Andrew Noble. Mr. Lorimer restored The Glen and Monzie Castle after their destruction by fire, and in the Royal Scottish Academy's exhibition this year he is represented by drawings of Rowallan, a beautiful castellated mansion in Ayrshire he has planned for Lord Rowallan. He was elected an Associate of the Royal Scottish Academy in March 1903.

The report of the Departmental Committee of the Board of Education on the cost of school buildings, which was published a short time ago, appears likely to cause a considerable waste of time in discussion and some ill-feeling perhaps, as in the case of the Westbourne Schools, West Sussex. The fact is that it is not easy to apply the recommendations of the report in all cases with any great success in attaining economy except at the cost of durability. The West Sussex County Council has at any rate decided that the new Westbourne Schools shall be built in brick, at an estimated cost of £11 7*s*. 2*d*. per place for 310 children.

Opposition is a natural accompaniment of interest in public affairs, whether national, municipal, or parochial, for on no given subject will all men think alike unless they are too apathetic to think strongly. Hence when the Wallasey Town Council propose to follow the successful example of Cardiff and build their new Town Hall in Central Park, there need be no surprise that a meeting has been held to protest against such a deprivation of open space, forgetting that a beautiful building will increase the charms of the park, whilst its own merits will be enhanced by its setting.

A very interesting and instructive report on the health of Birmingham in 1910 has just been issued by Dr. Robertson, Medical Officer of Health for the city, in which he states that the year 1910 establishes a record for general healthiness. On the whole, fewer people have died per 1,000 of the population than ever before in the history of Birmingham, and the preventable diseases have declined in a marked and satisfactory manner. He believes it is quite correct to say that Birmingham is shown to be the healthiest large manufacturing city in Europe where a strictly accurate comparison can be made. For forty or fifty years the statistics have been increasingly fallacious, in that they represent all the unhealthy portion of Birmingham and only part of the healthy. The extension of the city boundaries, work which occupied so much time during 1910, will put Birmingham in its proper place in the future, as not only a very large and populous city, but as the healthiest of the large manufacturing towns in this country. The mortality rate for 1910 in Greater Birmingham, based on the corrected population, was 13.1 per 1,000, as compared with 17.2 per 1,000 in Glasgow, 15.8 in Edinburgh, 16.2 in Manchester, 18.3 in Liverpool, and 14.2 in Sheffield. While the record for this district is one of the best that he knows of for a manufacturing town, one cannot but see that the mere size of the city shuts in, in the central districts, large numbers of persons in areas where clean air, clean surroundings, and clean houses are practically impossible. In such areas there still are mortality rates of 21 and 22 per 1,000, with enormously high and expensive sickness rates. "To effectively deal with these areas, and particularly with that part of the population amenable to betterment, the policy which was originated in Birmingham of housing and town planning is, he believes, thoroughly sound, and will lead eventually to good results. He has watched very carefully during the past year the progress of the movement known as town planning, and suggests that the greatest care should be taken in the city to make it conduce to the common good rather than to those architectural and æsthetic results which will benefit mainly the better artisan classes, who can and do look after themselves. Attention has up to now been directed to the laying out of new roads and limiting the number of houses in suburban areas. This is, of course, essential, but equally important for the prosperity of the city, and therefore for its communal welfare, is, firstly, the giving of business facilities to manufacturers and others, on whom the prosperity of the town depends; and, secondly, the getting rid of areas where squalid dwellings are dovetailed in between smoky and otherwise objectionable works. There seems to him to be no insuperable difficulty to prevent all such works being removed in time from the precincts of the areas occupied by dwellings."

An interesting discovery has been made at Fotheringhay in connection with the Castle Stone, to enclose which with a light iron railing a fund has been collected by the Peterborough Archæological Society. It had long been suspected by the Secretary of the Fund (Mr. Frank Loomes) that the underpart in the ground would support the tradition that the stone rolled from the Castle Keep and that it was part of the ancient Keep (which it is known was in the form of a fetter-lock). It was accordingly decided by the Society that whilst the actual position of the stone should not be interfered with, that the mass itself should be lifted and the tooled stonework, if any, revealed. This was done, and the concrete mass was found to be simply the backing of a liberal breadth of worked Barnack ragstone forming a more or less obtuse angle with plinth complete. More than this; it fitted exactly into what can be imagined to be the design of the fetter-lock Castle Keep as it joined the southern bastion. The mass, weighing some twenty tons, was then raised to the same vertical position as it occupied in the original building of the time of Edward III., by the son of whom the Castle was rebuilt, so that the stone now tells its own story for the first time for 300 years or more.

ARCHITECTURAL ASSOCIATION EXHIBITION OF STUDENTS' WORK.

THE President (Mr. G. C. Horsley), in opening the proceedings on Friday, July 21, uttered a few well-chosen words, welcoming cordially the relatives and friends. He adverted to the criticisms sometimes offered as to the unsystematic wall-display of the students' sessional work. On the present occasion the method pursued had been to hang the work of the best students in the first and second years with a regard to completeness, thereafter hanging other work of these years with a view to displaying a large amount of variety. Some of the work of the third and fourth years' students was necessarily crowded out for lack of wall-space—at any rate from the standpoint of completeness of display. Mr. Horsley thought that the drawings exhibited spoke eloquently and well for the future. Masters and students all combined in the efforts towards success. To Mr. Maule the Council was deeply indebted, as well as to his able band of assistants. A change was foreshadowed in the immediate future whereby Professor Beresford Pite would act as Director of Education in co-operation with Mr. Maule, who would—at any rate for a twelvemonth—retain the control of the day school, whilst Professor Pite would assume the control of the third and fourth years' students. The Council desire to express their sense of the honour of having with them that afternoon Mr. W. R. Colton, A.R.A., and Sir Aston Webb, C.B., C.V.O., R.A. Mr. Frank Brangwyn, A.R.A., had also intended to be present, and the presence of these three gentlemen served to express the union of the arts which is at last the spirit and life of Art itself. Mr. Horsley proceeded to read out the list of prize-winners, premising that all cannot be first (though we must be permitted to disagree), and therefore the unsuccessful students should not feel discouraged, and their day for receiving reward will doubtless arrive.

Mr. Maule, who was warmly welcomed, said: Mr. President, ladies and gentlemen,—I feel it quite an ordeal to speak on occasions like the present, and I should have expected, too, that you would have been more or less uninterested in the work generally, though I confess I am pleased that you should show interest in architectural education. I will first of all refer to the arrangement for next year. When I asked the Council to relieve me of my post I expressed my willingness to continue for a twelvemonth if so desired. Professor Pite is therefore to take over the directorship, I continuing to control the day school for that period. Already several changes are foreshadowed for the benefit of the school. I always regard it as a great advantage that those who lecture should also teach; it is always difficult otherwise to obtain a sufficiently close connection between lectures and studio work. For the future the lecturing is mostly to be done by studio instructors. Professor Pite will himself take over the historical lecturing in the evening school. I regret that we shall lose some highly-prized lecturers—I refer to Messrs. Fyfe, Alan Potter and Prior, whose past efforts I value; but at the same time I welcome the new arrangement. Another change foreshadowed is, that the teaching of construction will be altogether in the hands of Mr. Varndell. I regard it as a great privilege to be associated with Professor Pite in teaching. The Architectural Association in general, and students and relatives in particular, should welcome the new arrangement and look forward with interest and excitement for the good results. Professor Pite is, to our regret, absent to-day, as he is lecturing in the North. I should like to reiterate my belief in the benefits that will accrue under the new arrangement. You all know Beresford Pite, what he is and what he does. Let me now refer to the work displayed on the walls, and I should like to point out that Mr. Dicksee is not our only first year student, as you might perhaps think from hearing the prize-list; others have run Mr. Dicksee very close. Mr. Gordon's work is excellent. In every year certain men come to the front and arrest the public gaze; sometimes they are really brilliant. On the other hand we have students who win to the front by steady, honest work, and they are, to my mind, specially commendable. The third and fourth years' work is very good, particularly that of Mr. Roberts, of the third year. The same remarks, regarding the calibre of students, apply to the fourth year. We have been criticised before now for not exhibiting all the sessional work; but it would be impossible, for we should need the whole of Tufton Street. No; we have to be satisfied with representing the best students thoroughly, and merely samples of the rest.

The test work of the end of the second year is done without any help in the course of five days. The student now finds what he is able to do under stress. The efforts of the staff lie in striving to get the student to make the most of himself, and teaching follows on. There is a want of character in youths of seventeen to nineteen years of age preventing them from doing their best. This is a defect of training. They cannot buckle to and work; it takes a couple of years to train them. Now this is a very serious fact, this loosening of the national fibre. Parents can help by making it easy for the student to work. His work is said to be hard; well, it *is* hard, but we must be ready to sacrifice pleasure for the sake of work; the study of architecture demands sacrifice. The evening school work is extremely hard, and if it has been so in the past it will not be less so in the future. The race is truly to him who will run with the greatest judgment. The indifference of Young England to the allied arts is, I consider, a defect of public school training. I thank you, ladies and gentlemen, for the patience with which you have listened to me.

Mr. Colton, A.R.A., asked to be excused from making any great mental effort on such a tropical afternoon. It would be useful to them perhaps to have the sculptor's point of view. He felt, in the first place, that we should alter our preconceived idea of what architecture should be—we should do away with walls and have open colonnades with the thermometer so raging. Mr. Colton regards Gothic architecture as being unsuited for theatres; and, again, he thinks Wren's smaller churches as unsuitable to the Christian religion. St. Paul's Cathedral, too, lacks a sense of awe, but it exhibits the value of mass and scale. In domestic architecture a depressing house is an obvious failure. Buildings have soul as well as body; to build a War Office like a theatre or an hotel is a failure—both the soul and the spirit of the building are missed. Suppose that a sculptor, in modelling a lion, gives it the body of a dog and the head of a chicken, the result is failure. Architects' drawings tend to be flashy; to make a nice, sloppy, loose drawing is a mistake, and works out lamentably. The foundations of architecture are mass, proportion, and unity.

Sir Aston Webb, C.B., R.A., remarked that he had really nothing to say, and anyway it was too hot. He had been looking at the drawings and he could not agree with Professor Colton as to the drawings being misleading (though this, indeed, was not what Mr. Colton had said). Drawing is necessary. Designing is difficult, and drawing is necessary to express the design. Nor is the style of drawing exaggerated at the present day. Those exhibited showed a minimum of unnecessary work. Architecture is the most difficult of the arts. Sir Aston Webb thought the year's work very satisfactory, and congratulated the masters.

The President thanked the speakers, and the proceedings then terminated.

LIST OF AWARDS AND PRIZES.

DAY SCHOOL.

First Year Awards.

Book prize for 1st place in history test paper and general excellence in this subject, H. J. H. Dicksee.

Book prize for 1st place in construction test paper and general excellence in this subject, H. J. H. Dicksee.

Geometry, 1st place, volume of Sketch Book, H. J. H. Dicksee.

Physics, 1st place, volume of Sketch Book, H. J. H. Dicksee; hon. mention, R. S. Wallace.

Freehand drawing, 1st place, volume of Sketch Book, E. C. Davies. The Studio prize—best portfolio of drawings made during session, H. J. H. Dicksee.

Hon. mention for progress during year, and authors of drawings selected for school portfolio, H. J. H. Dicksee, R. S. Wallace, E. C. Davies, H. G. Satchell, and E. Hayman.

Second Year Awards.

Travelling studentship, value £15, for studio and lecture work during session 1910-11, holiday work, and general progress, D. J. Gordon.

Specially commended, T. W. Dowsett and C. M. Cooper.

Hon. mention for general progress during session, G. Fildes and C. G. Ripley.

End of session test. Prize offered by the master, H. P. G. Maule. Subject: A village club and institute. Study placed first, D. J. Gordon; specially commended, Stanhope Bennett, T. W. Dowsett, and C. F. Aldous; honourably mentioned, H. Fellowes Prynne, C. M. Cooper, and Howard D. Archer.

Students recommended for the Association two years' course Certificate:—H. D. Archer, C. M. Cooper, D. Cruickshank, T. W. Dowsett, D. G. Gordon, E. J. T. Lutyens, A. B. Peermahomed, G. Moerdijk, C. G. Ripley, G. Fildes, and S. A. Bennett.

Subject for vacation work.—C. F. Aldous, M. Day, G. Detmold, W. Harkess, H. F. Prynne, and N. F. Woodroffe.

EVENING SCHOOL.

Preparatory Courses.

Scholarship, free pass to third year, value £15 15*s*., E. Kennedy Smith.

Book prize, value £2 2*s*., J. B. M. Walch.

Master's prize for hardest worker, J. A. Hale.

Hon. mention, G. M. Aylwin and L. G. A. Dubuis.

Third Year.

Scholarship, free pass to fourth year, value £15 15*s*., A. B. Ll. Roberts.

Book prize, value £2 2*s*., G. W. Stuart.

Master's prize for hardest worker, T. F. Ford.

Hon. mention, A. E. Maxwell, R. C. Stevenson, R. Van't Hoff, A. T. Hardman, F. B. Spooner, and J. McGregor.

Fourth Year.

Travelling studentship, value £15, H. V. C. Curtis.

Book prize, value £2 2*s*., F. A. Crouch.

Master's prize for hardest worker, F. A. Crouch.

Hon. mention, A. S. G. Butler, J. O. B. Hitch, B. P. Gaymer, and C. W. Rogers.

ARCHITECTURAL DRAWINGS AT UNIVERSITY COLLEGE, LONDON.

AN exhibition was opened on Friday, July 21, by Mr. Leonard Stokes, P.R.I.B.A., of drawings made by day students at University College of the present session who are taking a two or three years' certificate or degree course, and by students who are attending the evening course of design, the cost of which is defrayed by the Worshipful Company of Carpenters.

As regards the arrangement of the exhibition, Professor Simpson, in some introductory remarks, explained that the work of the day students started from the left-hand corner, continued up the outside of the screen and along the two sides of the side aisle. The drawings were arranged, as far as possible, in the order in which they were executed: commencing with the building construction exercises, simple exercises on the "Orders" and other elementary work, and proceeding to more advanced problems and to designs. On the left-hand side of the central aisle were grouped together the drawings submitted by Mr. E. Musmann, one of the degree students for Part I. of the B.A. degree (honours in architecture). They showed the standard that the College authorities hoped degree students will reach by the end of their third year, although he had doubts whether the same high degree would be attained for some years. Mr. Musmann's drawings were awarded the Donaldson Medal out of the fund controlled by the Royal Institute. On the other side of the central aisle were drawings of buildings measured by students, mostly during the last long vacation, and sketches by them. Down the outer aisle on the right, and on the outside of the screen, was the work of the evening students in the design class, for which Mr. Leonard Stokes and Mr. Ernest Newton acted as visitors; also some sketches made by evening students at South Kensington Museum.

Mr. Leonard Stokes, P.R.I.B.A., said it was a simple thing to declare the exhibition open, because it had been already opened. However, he would like to congratulate Professor Simpson on the excellent standard of the work. About that there could be no two opinions. Some of the work was particularly, perhaps extraordinarily, good. It was certainly a fine thing to have a lofty standard to aim at, and it was excellent for the students at University College to have had such a high standard set before them and to have high ideals. Unfortunately, ideals became lost as one grew older, and so the students should keep to theirs as long as they could. He did not like to particularise about the exhibition, which, as a whole, was full of interest. The college authorities were very wise in getting the best men they could to act as visitors. He could say that because he was one of them himself. But there was a danger in keeping too much to one man, as thereby the students were apt to get into ruts—even though those ruts might be excellent ones. In referring to the work done, he might say that the ladies' work struck him with amazement. As a mere man, he himself could never hope to do anything like it. Male students would have to be very careful or they would find themselves left hopelessly behind if the ladies go on as they are doing at present. It was proposed to introduce a higher course of architectural training at the College. The establishment of such a course would meet a long-felt want in London, where the higher branches were not taught to the extent they ought to be. There were provided, of course, already many opportunities for learning; but things like town planning were not treated on broad enough lines. The advanced course which the College was introducing seemed to be a most excellent one, and would be an interesting experiment. He advised the students to make up their minds to go in for it. There were, of course, a great many things to be learnt before they could tackle this big subject—though even a small cottage could be treated on big lines and in a broad and simple way. He hoped the students would get a great deal of benefit from it.

Dr. Gregory Foster, the Provost, said he had been asked by the College Committee to convey their thanks to Mr. Leonard Stokes. It was a great gratification to them that Mr. Stokes had consented to act as visitor again for another year, and they hoped to have him in that capacity for many years. Their Department of Architecture had received a new stimulus and new life with the coming of Professor Simpson. They hoped next year to institute a course of advanced academic design under the able guidance of Dr. J. J. Burnet. Indeed, they hoped to do a great deal more. Anyone who went to the house where the Architectural Department did its work would understand why they hoped to do a great deal more. They were in great need of additional accommodation. The building originally intended as the Bursar's house had been made to serve the purposes of the architectural students, though it was quite inadequate. The College authorities hoped to have a new building for the Department of Architecture. Some of them might have heard that the Senate of the University of London had been considering this matter for some years, and had come to the conclusion that the needs of London and the country generally with regard to architectural education would be better met by organising one strong school of architecture rather than by maintaining two relatively weak ones—one at University College and one at King's College. It was proposed, therefore, when funds were forthcoming for a larger building, to transfer the Department of Architecture which had hitherto been at King's College to University College, and house it in one building. That would mean that Professor Elsey Smith and his staff at King's College would join Professor Simpson and staff at University College. It would give them a strong staff, and he predicted success for the venture. He ventured to hope that the help of the Carpenters' Company would be continued. The scheme only needed some pious benefactor to bring it to a triumphant conclusion.

Mr. Percy Preston (Past Master of the Carpenters' Company), in seconding the motion, said he thought they ought to congratulate Professor Simpson very much upon the work the students had carried out under his instruction. They had to thank Mr. Leonard Stokes for coming there that day, and also for giving his time (as also Mr. Newton) in acting as visitors. The work shown reflected great credit on them, and on all those connected with the college.

We are asked to mention the exhibition will remain open until to-morrow—July 29.

ROYAL ARCHÆOLOGICAL INSTITUTE.

Tuesday, July 25.

THE Summer Meeting of the Royal Archæological Institute opened on Tuesday last with a reception in the City Hall by Alderman F. J. Beavan, on behalf of the Lord Mayor, who was detained elsewhere by his efforts to bring about a conciliation in the present labour disputes.

Alderman Beavan warmly welcomed the Institute to the city, and expressed a hope that the members would go back considerably benefited from the point of view of enjoyment and general interest.

Sir Edward Brabrook, C.B., Dir.S.A., Vice-president, acknowledged the welcome, and said they were delighted to meet in a city which had such very great archæological and modern interest. It was just thirty years since he had been in the town, and he would like to congratulate the city on the great improvements carried out, and especially on the possession of the beautiful building in which they then were. The Institute looked forward to their Summer Meeting at Cardiff.

An inspection was then made of the Corporation insignia and plate. The most conspicuous piece was the silver-gilt loving-cup presented in 1891 by the late Lord Bute at the conclusion of his mayoralty. It weighs 389 ozs. 5 dwts., and cost about £3,000. At the base are three enamelled figures on silver, representing the three local rivers—the Taff, the Ely, and the Rumney; on the cover is a fourth figure wearing a mural crown studded with diamonds, and emblematic of Cardiff. These figures were modelled by Mr. W. Birnie Rhind, of Edinburgh. Round the stem between the base and the stem is coiled the red dragon of Wales, the back of which is studded with rubies and carbuncles, and the claws with diamonds, while the eyes are emeralds. The whole cup is, in fact, encrusted with precious stones. Other good pieces are an epergne (1820), which was formerly the property of Charles X. of France when he was exiled and living at Holyrood Palace, and a very handsome and heavy jardinière or monteith (1786). The Corporation have four maces, dating probably from the period of Charles I. (1600-1649)—two are small and two are of a considerably larger size. Among the other objects displayed were the chains of the Lord Mayor and Lady Mayoress and some Coronation Plate (1902).

CARDIFF CASTLE.

The first visit in the afternoon was to Cardiff Castle. The grounds occupy the site of a Roman station, of which a considerable part of the wall and the north gateway remain. The quadrangular enclosure extends to about ten acres, and was defended by a high bank and a moat. At the departure of the Romans it was occupied by the Welsh princes of Morganwig. The castle was taken by Robert Fitzhamon about 1090. After many vicissitudes it came into the possession of the Crown, and was granted by Edward VI. to Henry, Earl of Pembroke. That nobleman's son did a great deal of building work, though of this there is nothing now remaining. Seven Earls of Pembroke held it in succession. It later passed into the possession of the family of Lord Mount Stuart. Through most of the eighteenth century it seems to have been uninhabited until about 1780, when they did a great deal to the building. This was followed by another blank, until, in 1870, the third Lord Bute took the work in hand, and employed William Burges.

Mr. John Ward, F.S.A., in describing the history of the castle, remarked that the early antiquaries appear to have known nothing about the Roman remains at Cardiff, for the first reference to it as a Roman station may be said to have been made in the early part of the eighteenth century by Baxter. It was not until 1760 that a writer recognised the site of Cardiff Castle as being that of a Roman castellum. The theories put forward by the early writers form one of the most amusing and interesting examples of archæological guesswork known. As a matter of fact, little or nothing was certain about the part played by Cardiff Castle in Roman history. The Normans cut a huge ditch to surround the Roman lines. The mound on which the keep stands was probably raised by the early Normans or the last of the Welsh lords. The whole area formed a very symmetrical castellum, closely resembling that at Porchester and of about the same size. The castle served as a sort of outlier of the Saxon coast forts. It was worth noting, said Mr. Ward, that the bastions are polygonal, and the sides are not truly at right-angles, as they bow outwards. The outer wall was mainly or entirely enclosed externally by a bank. The first stages of the castle might be thus described: first it was a castellum, and a very important one in late Roman times; then it had its uses as a ruined castellum. Next there was the Norman adaptation of it by throwing up a mound and altering the walls. It was difficult to say at what date the Romans first appeared on the scene. When twenty years ago the walls began to be uncovered, it was found that Roman work was placed upon still earlier Roman work. The object of the fort was to bar the Severn against the Irish and other pirates. The polygonal keep was the only example of a shell keep in Wales. The outer surface of the north wall was reconstructed twenty years ago. The junction with the Roman work at ground level is marked by two courses of red stone. The gatehouse, with its core of Roman masonry, which was rebuilt at the same time, is going to be taken down and reconstructed in a more satisfactory manner.

To the west of the Castle, and in the grounds, is the site of a Dominican Friary, of the history of which very little is certain. It was founded about 1250, and until its suppression it continued to be a very small and poor establishment. Portions of the church walls and of other parts were standing as recently as 1840, but in that year they were levelled to the ground, and the site turned into a lawn. The late Lord Bute, however, afterwards had the foundations followed up, and wherever they were traced their lines were marked by dwarf walls; where their outline was unmistakable yellow and black bricks were employed, and when there was a doubt about it red bricks were utilised. Some of the latter walls are, according to Mr. Ward, very conjectural indeed; but, as he remarked, it gives, in a general way, a clear idea of the plan of a Dominican Friary in the thirteenth century. Mr. W. H. St. John Hope, M.A., mentioned that he had been consulted at the time these walls were being erected, but he had then declined to express any definite opinion, as he was not present when the foundations were laid bare. The gentleman in charge honestly told him he knew nothing about monastic buildings. In many places the outline was, he thought, decidedly conjectural. There was a church with the broad nave usual with a preaching Order like the Black Friars; nor could there be much mistake about the square of the cloister, though whether the alleys were as wide as shown was doubtful. The general arrangement did not always comply with the normal contemporary arrangements—so far as there could be said to be any normal arrangement. The fountain in the centre of the cloister space, said Mr. Hope, most certainly could not have been there, for not a single mediæval cloister in this country was provided with a fountain. Whenever a water conduit was erected it served a different purpose. Other parts of the ground plan suggested a frater, a yard, a kitchen, and, possibly, a chapter house and an infirmary.

Before leaving the grounds a somewhat hurried tour was made of the residential part of the castle, which is so strongly assertive of the individuality of its architect, William Burges. It is impossible to admire everything he did there, though a great deal of it is both ingenious and beautiful. His inventiveness and his mediævalism seems in some cases to have swept aside his discretion and that restraint which is essential to the best work. Apparently he was given by Lord Bute *carte blanche* as to cost, and this resulted in both exquisite and gaudy work.

ST. JOHN'S CHURCH.

The ancient and only parish church of Cardiff was St. Mary's, and from it sprang St. John's. St. Mary's was situated immediately within the south gate, and near the bank of the River Taff. Evidently its proximity to the river was recognised to be dangerous long before 1607, when its undermined foundations collapsed. St. Mary's was in existence in Fitzhamon's time (1090-1105), and was probably then built. The first mention of St. John's, said Dr. C. T. Vachell, in his description of that building to the party, is contained in an undated charter given between 1173 and 1183 by the Bishop of Llandaff. St. John's was then a small chapel-of-ease belonging to St. Mary's. In 1473 it was determined to greatly enlarge it and virtually to convert it into the parish church. It at present consists of a chancel with side chapels, a nave with four aisles, and a beautiful western tower of the best Somerset type. The cost of this great work is believed to have been borne by Lady Anne Neville, daughter of Warwick, the King-maker. The most ancient portion of the existing building (and probably the only portion of the original church left remaining) is the south arcade of the chancel (1290-1310), which has never formed a part of or been bonded into the walls of the existing nave. The special objects of interest in the church mentioned by Dr. Vachell were: (1) A perfect rood turret with door and steps complete; (2) a Jacobean marble tomb in the Herbert Chapel; (3) some good painted glass—notably a window in the north-west corner of the nave, designed by Ford Madox Brown; and (4) a reredos to the high altar by Sir Goscombe John, R.A. About ten years ago the church was greatly enlarged by the addition of two side aisles. At the same time the unsightly galleries were removed and other work carried out at a cost of £23,000. The latest addition is an oak chancel screen, designed by Mr. Compton, which has just been put up.

From St. John's Church the party went to the site of the Austin Friary, which is almost opposite the Town Hall. The site was excavated in 1897, when the foundations of the church were discovered and their outline marked by the erection of low walling. The monastic buildings were converted after the suppression of monasteries into a house, which was for many years the seat of the Herberts.

At 4.30 P.M. tea was served by invitation of the Lord Mayor in the City Hall. This was followed by an inspection of some of the chief exhibits in the Welsh Museum of Natural History, Arts, and Antiquities, of which Mr. John Ward is the curator. Its unique feature is a collection of Welsh (Swansea and Nantgarw) porcelain, now very scarce, as the factories were of short duration. The Museum, it may be mentioned, will be transferred to the National Museum of Wales, which is to be erected in the Cathays Park on a site to the east of the City Hall.

At the evening meeting in the City Hall Mr. J. W. Willis Bund, M.A., LL.B., F.S.A., read a paper in place of the address which was to have been delivered by the Right Hon. the Earl of Plymouth, the President of the meeting, who was unable to leave London owing to the political crisis. Mr. Willis Bund dealt with

GLAMORGAN AND PEMBROKE.

It would be difficult, he said, to find any two places of greater historic interest in the Principality than those the Institute has chosen for its visit this year. The only possible objection that can be raised is that the programme is too ambitious. Still in a way the combination is a happy one, as it enables a comparison to be made of two great Norman colonising experiments and to study the modifications that the different circumstances the method met with produced both on the system and its results. It would, however, give an entirely wrong impression if the matter was considered solely in the light of the Norman Settlement; a consideration of the earlier history is necessary to realise the different conditions which prevailed in the two localities.

I. The first condition is common to both. As far back as history extends until it is lost in the dim light of Celtic legend the west coast of Wales and the shores of the Severn Sea were subject to frequent raids of pirates from Ireland, from Cornwall, from France, and from the North. These raiders are usually called Danes, but (if the line may be adapted) from whatever country they came Wales could say they were "All of them Danes in plundering me." The Welsh were not above having expeditions of their own, plunder and slaves were an attraction to them as to their plunderers. An account of one of their expeditions to Ireland has survived. A Welsh Prince Caroticus made an expedition to Ireland, and doubtless his followers considered themselves fortunate in finding a number of persons assembled for a baptism of native Irish who had been converted to Christianity. While still in their white baptismal robes the Welsh swooped down on them, killing some, carrying off others as slaves. It was a successful haul—so much so that St. Patrick, who heard of it, sent the next day asking if the Welsh would restore some of the plunder and the baptised captives; the Welsh only laughed at the Saint's request. Patrick's only weapon left was to resort to strong language, which he did, and wound up by asking: "Where will Caroticus be with his wicked rebels who distribute among their depraved followers baptised women and the spoils of orphans?"

In the Severn Sea these slave-hunting raids from abroad were frequent, but gradually, possibly from the influence of the Church, the Welsh raids appear to have decreased. But the piratical visits to Wales continued, or possibly it might be said the Welsh gained all the fruits of plundering "in a more excellent way," that is, by plundering the plunderers. If anyone looks from the hills above Cardiff out to the Severn Sea he may see two islands known as the Steep and the Flat Holmes: these became the abode of Saints of the greatest sanctity. Legends of considerable beauty exist as to these Saints and their deeds. The Saints were not confined to those on the Holmes. Most of the islands and rocks in the Severn Sea had its Saint, who were venerated for their piety and who died in the odour of sanctity. How did they pass their time on the lonely rocks? This they kept a profound secret—it was said to be in praying and meditating. Possibly this was not always so. Ships sailed up the Severn in safety, and ships were shipwrecked in descending. Saints inhabited the islands. Some of the raiders were so pleased with the shores of the Severn Sea that they remained there for life—among them one named Harding, whose descendants, the great house of Berkeley, have still an abiding place there. One point of importance should be remembered in connection with these raiders, we know little about them, we might and ought to know more. Many of them were buried by the shores of the Severn Sea. Whenever, either by opening a tumulus or in any other way, relics of the past, bones, pottery, weapons, are uncovered they should be religiously preserved. They may tend to throw light on the history of the raiders. Some of the pottery figured in *Archæologia* found in Glamorganshire is of an Irish, others of an unknown, type. It is from such specimens and the bones and weapons the history of these men has to be built up. How much of the history of these early raids has been lost?

II. Part of the raiding period, certainly so far as Glamorganshire, and possibly also Pembrokeshire, is concerned, was covered by the Roman occupation. The Great Roman Road, the Via Julia, ran along the coast lines of

Glamorganshire and Carmarthenshire, and connected with it are traces of Roman occupation. The Roman towns of Caerwent, Caerleon, and Caerdiff all mark points on the road, and the fact that these stations are nearer together than is the case on most of the Roman roads may be a testimony to the peril of their position and the fighting power of the Silures. As the road proceeds from Caerdiff westward traces of Roman occupation are still to be seen. Between Pyle and Neath a Roman miliary stone (now in the Swansea Museum) was found; said to bear the name of Victorinus. Two other miliary stones were found near Aberavon (Port Talbot). Still further along the road at Llougher, on the river of that name, where the road crosses into Carmarthen, traces of a Roman station were found, among them a Roman altar. While at Carmarthen a Roman stone and two small Roman altars have been found. Along the whole length of the Via Julia, from the Wye to the Touy, clear traces of Roman occupation exist. No inscribed Roman stones seem to have been found west of Carmarthen in the direction of Pembrokeshire. This points to the fact that there is not sufficient evidence to justify the opinion of the eighteenth century antiquaries that the Roman road went on from Carmarthen to St. David's.

III. Whatever vices the Roman soldiers possessed and brought with them to Britain it is fairly certain they brought over one great virtue, for it was to them that we are indebted for Christianity. Some spot along the Via Julia, most probably Caerleon, the headquarters of the II. Legion, the one that garrisoned the district, was the place where Christianity first made its appearance in Wales. Thence it spread probably along the line of the Road, which would account for the number of Christian schools that sprang up near it. All these early Celtic schools in Glamorganshire gradually disappeared as other influences arose. But not the least interesting among the many interesting points relating to the Welsh Church is to compare the histories of the two great South Wales monasteries, one at Llandaff and the other at St. David's. At the former will be seen a great religious establishment almost within bow-shot of the castle of the feudal lord, under his influence to a considerable extent; while at St. David's will be seen a great independent religious establishment, the feudal lord of which is the head of the monastery, and where it was his interest to maintain his feudal rights and not unnecessarily to interfere with the existing state of things.

It will not be necessary to go into the story of the two dioceses of Llandaff and St. David's, nor to show how the Llandaff Bishopric suffered from its proximity to England. It was almost impossible for it to have preserved its national independence, surrounded as it was by castles of Norman lords, each of whom wanted some part of the episcopal possession. That Llandaff was spoiled by the Norman settlers is abundantly proved by documentary evidence. St. David's retained her independence from various causes, not the least being her remoteness. When the Institute are going round the country they will observe how castle after castle is to be found in Glamorganshire, while when they reach St. David's they will see the great church alone in its desolation, and will begin to understand how differently the Church worked in the two districts, owing to the different character of the districts on which it had to work. It is true Urban at Llandaff kept up a steady contest with Bernard of St. David's, but the victory was a foregone conclusion. A protected prelate had no chance against a man who combined in himself the offices of feudal lord and Norman bishop.

IV. The conquest of Glamorganshire is a matter upon which much has been written, and upon which it is difficult to separate history and legend. Fitzhanon and his twelve knights—the number sounds as if legend had come in—is a very fascinating subject, but one that has to be passed by for the present. Assume for the moment he had twelve followers, and he gave them all grants of land and they all built castles, a certain number certainly did—the exact number is of little importance here. What is of importance in taking Fitzhanon as an average specimen of the Norman colonists is to see the way in which he carried out his work. Whatever else he was, he was a strong able man. Unless he had been he would never have received the lands that the Crown gave him. He combined the two qualities that all the prominent Normans appear to have possessed, great personal courage and great superstition. His courage was proved in many a fight, finishing at Tenchai, where he received severe wounds, from which he never recovered. His superstition or piety is proved by his gifts to various religious houses, but above all by that noble pile of which he was the founder, the Abbey Church of Tewkesbury, and in which he is buried. The great pillars of the nave may be taken as typical of the man and his work to crush out all resistance, both ecclesiastical and civil, to his rule. First came the castles, Cardiff, Caerphilly, Coity, and a number of others in Glamorganshire, and then, further along the old line of the Roman road, Loughor, Kidwelly, Llanstephan. This was the civil side, one of the pillars on which Norman rule was to rest; the other, the ecclesiastical side, of which the pillar was the Monastery. This was done in two ways: first, by making gifts to existing religious houses, either in England or on the Continent, mainly on the Continent. Between 1066 and 1100 six religious houses were founded in South Wales, all were Benedictine, four were cells to Norman Abbeys abroad, and of the two English one was a cell to the Conqueror's Abbey of Battle, the other to St. Peter's, Gloucester. In looking over a map of Glamorganshire it may be seen that along the Via Julia and the adjacent lands the Castle and the Abbey go hand in hand. Where there is a castle near to it is a religious house of some kind, usually a Benedictine house; thus showing the deliberate intent of the Norman settler to establish Norman rule both in matters ecclesiastical and civil, or, to use the words of a great writer on the Monastic system, "The Monastic Orders were but one branch of that great Christian Society ruled by the Church and feudalism." From the Wye to the Touy the country was governed by this combination, and although doubtless there was tyranny and violence, yet it was successful. The country became one of the most prosperous parts of Wales, and the term "preservation of life and property" had some real meaning. Considerable remains of this system are to be seen. At Ewenny there is a fortified priory which shows the system at work from one side, a priory which was a cell to St. Peter's, Gloucester, and was fortified to protect the Gloucester Abbey's possessions. At Cardiff there is the chapel in the castle, which was given to the Abbey of Tewkesbury. Thus both these houses secured the lives of their servants and the property of their houses if occasion arose. But they did not rest here. Such of the churches as have escaped the obliterating hand of the restorer show that these were mostly also fortified, at least sufficiently to enable the settlers to hold out until help should come from the castle. Many of the churches are large enough to hold all the inhabitants of the place and much of their property, including the sheep and cattle, which would give a supply of food; and although we might not care to drink from a churchyard well, yet in case of an attack the early inhabitants during a siege might not be so particular.

The line of castles continued either on the road or the approaches to the road until Carmarthen was reached; here they practically stopped, and this is further evidence that the road did not continue beyond Carmarthen. While some of the other approaches to the road are guarded by castles, each of the mouths of the rivers has its castle, as, of course, Neath, Swansea, Loughor, Kidwelly, and Llanstephan, so if the worst came to the worst there was an escape or relief by sea. The Welsh did not possess ships, they had been cut off from the seaboard.

The position may be thus summed up:—

(*a*) The piratical raiders had taught the lesson of the importance of the sea; that lesson had been learned, the sea was well guarded.

(*b*) The Romans, by making the great road, had taught the importance of keeping open a direct means of communication; that lesson had also been learnt and not forgotten.

(*c*) The Normans had felt the importance of having a body on whom they could rely for defence if his retainers were absent, that body were the monks, and so the castle and the convent were combined.

(*d*) The Norman system, applied and enforced by the castle and the convent, gradually got rid of the local customs and ideas, so that along the tract of country within the influence of the Norman a state of society was growing up which differed but little from that of England. Local customs, ideas, superstitions, and language prevailed, it is true, but there was no idea of a separate country or a separate nationality. What the Pale was to Ireland the settled part of Glamorgan was to Wales. So it may be said that, given the proper circumstances, the Norman system of colonising proved a success.

Turning to Pembrokeshire, we are met with a different state of things. Here there was no one who occupied such a position as Fitzhanon did in Glamorganshire, and the Norman influence was confined to particular defined parts. As in Glamorganshire, they were raiders, and the old legends point to rather an active intercourse between that district and Ireland, an intercourse which was continued after raiding had practically ceased. This intercourse tended to keep up the local and national customs by securing a constant immigration of Celts into the country, a state of things practically unknown in Glamorganshire.

Probably the fact that there was no real Roman occupation, even if the Romans ever reached the further side of Pembrokeshire, tended to foster native ideas. Had the Via Julia with a line of forts extended beyond Carmarthen a very different state of things would have arisen. As it was, West Carmarthenshire and Pembrokeshire were cut off, isolated, and thrown largely on their own resource. The Church had also an isolating influence, and was able to gain an authority and position that was quite exceptional. A large and powerful monastery, receiving constant grants of land in all the counties of South Wales, was in a very different position from a monastery which had all its lands around it and powerful neighbours always ready to plunder it. Up to the Norman Conquest the Monastery of St. David's had gained such a grip on South Wales that it would have been very difficult, even if possible, to relax it.

All the history of the district before the Conquest tended to consolidation, and this process had gone too far for the Normans to change by ordinary means. South Pembrokeshire, with the strong fortress of Pembroke, had been settled precisely as Fitzhanon had settled Glamorganshire—a castle with a religious house under its shelter. So also the castles of Carew and Manorbiers were built as some of the Glamorganshire castles, and this part of the country was gradually settled in the same way as Glamorganshire. But a new feature was introduced to a large extent, how large is a matter on which people differ; the Welsh inhabitants were cleared out, and a number of Flemings settled in the district. North Pembrokeshire—that is, the lordship of Kemmes—was settled by a Norman, Martin of Tours, but separating him from South Pembroke was the jurisdiction of the House of St. David's, the Hundred of Dewisland. So the Lord of Kemmes was to some extent isolated. South Pembrokeshire stood by itself, an expropriated county. The real power in the district was the St. David's House. As soon as St. David's House fell under the rule of a Norman bishop, and such an able bishop as Barnard, it might be thought that the Normanising of the country would go on. But it was not so. What time Barnard would give from his other duties to his diocese was mainly occupied in fighting the Bishop of Llandaff, Urban, as to the boundaries of their respective dioceses, whether certain churches dedicated to St. Teilo could really be the property of the St. David's House. The officials of the diocese were, it is believed, mainly Welshmen. As long as Welsh law and custom were carried out no difficulties arose. So while nominally the Bishop of St. David's was a Norman bishop assisting in the Norman settlement, in fact he was keeping things as they were. So much was this the case that even in the fourteenth century Welsh customs prevailed on some of the estates of the See.

For some reason the Normans did not introduce Benedictine monks into Pembrokeshire in anything like the same way they had done in Glamorganshire. About 1125 Robert Fitz Martin, then the Lord of Kemmes, founded a House of Reformed Benedictines at St. Dogmaels, on the Teifi, known as Tironian from the great House of the Order of the Abbey of Tiron. It prospered and sent out two cells, one at Till and the other on the Island of Caldey. Except Monkton, Pill, Caldey, and the Mother House St. Dogmaels, there were no other Benedictine foundations in Pembrokeshire. When this is compared with the number in Glamorganshire the difference between the two settlements will be realised.

It might be thought that the Norman colony in Pembrokeshire was a failure. This can hardly be said to be the case in the area to which it extended. The very drastic measure of clearing the country and establishing the Flemings made a success of what might have otherwise been a failure. Although the Normans in Cardiganshire, the Clares, were only separated by the river, yet the Lord of Kemmes never became the power that the other Lords Marchers were. Yet his descendants are the only survivors of the settlers who are still in possession of the lands and rights. It was the House of St. David that was the real power in the country, and in spite of all that happened it was the House that remained the great power.

Pembroke stands on a site pre-destined for a fortress. Carew as it now exists is a fortified house. As to Manorbier, it will perhaps be best to give its description in the words of one who was born there and to whom we owe so much for our knowledge of mediæval Welsh history, Giraldus:—"As Demetia," he says, "is the fairest of all the seven cantrefs of Wales, and Pembroke the fairest of Demetia, and this spot the fairest of all Pembroke, it follows that Manor Pyrr is the fairest spot in all Wales."

But St. David's is unique. Possibly the view of the place where the Welsh bishops dwelt in all their glory, even in its decay, will bring home more forcibly than anything else the power and authority of the See of St. David's. Its power and authority was to a great extent maintained by its great inaccessibility. "Roma dedit quantum bis dat Menevia tantum" can now hardly hold good. To say nothing about Welsh history, there is the important part that Pembrokeshire has played in English history. The last successful attempt to take forcible possession of the Crown of England started in Pembrokeshire. Two French invasions have been made from it, one to terminate at Worcester, the other, the last in our history, to terminate in the invaders surrendering to a man. One of the Pembrokeshire peers gained his earldom, not as peerages are proposed to be gained now, but for his action in that invasion. Coming nearer to our own times, Pembrokeshire was the headquarters of the last rebellion, that of Rebecca and her daughters.

ILLUSTRATIONS.

UNIVERSITY COLLEGE OF NORTH WALES, BANGOR.

The new buildings of the University College of North Wales occupy an extremely fine site in upper Bangor, overlooking the city, and presented to the University authorities by the Corporation.

The entire scheme comprises the following: (*a*) Administrative Council chamber, &c.; (*b*) arts department; (*c*) chemistry and physics; (*d*) botany and geology; (*e*) agriculture; (*f*) great hall; (*g*) library and museum.

The portions at present erected include sections (*a*), (*b*), (*f*), and (*g*), the science work being carried on in the Old College Buildings at some distance from the New College.

The buildings are arranged in the form of two quadrangles, the smaller of which is completed, but only a part of the larger quadrangle is built at present. The whole of the buildings are faced with Cefn stone, and the roofs covered with Precelly slates, all floors and staircases are of fireproof construction, and the joinery throughout is of wainscot fumigated and wax polished.

The heating is by low-pressure hot-water, and especial care has been given to the ventilation, which is on a somewhat novel principle. The lecture rooms have windows on both sides, and the corridors are entirely open, thus ensuring an ample and constant provision of fresh air.

The library is a fine apartment, 120 feet long, with an open roof decorated with the arms of the principal boroughs of Wales. The book cases are arranged in the usual manner of a college library, and storage is provided for over 100,000 volumes. The library and museum are the gift of the Drapers' Company.

The great Hall has been erected with funds generously provided by Sir John Prichard Jones, Bart., and is named after him the Prichard Jones Hall. It provides accommodation for over 1,000 persons.

It is hoped that it may be found possible to proceed at an early date with the Science blocks, and so centralise the work of the college.

The architect is Mr. Henry T. Hare, F.R.I.B.A., and the builders are Messrs. Thornton & Sons, of Liverpool.

Our series of illustrations of these buildings was commenced last week, and will be continued in subsequent issues.

The annual meeting of the Western District of the Institution of Municipal Engineers was held on the 15th inst. at Worcester, the chair being taken by Mr. Henry Hulse, borough surveyor and engineer, Droitwich. Mr. Henry Hulse, was elected district chairman, and Mr. John Brook district secretary, for the ensuing year. It was arranged that meetings should be held at Coventry, Evesham, and Gloucester during the next few months, the first to be held in September. A paper, "Municipal Engineering as a Profession," was read by Mr. B. Wyand, and a brief discussion followed, a vote of thanks to the author being proposed and seconded by Mr. H. Treadwell and Mr. W. Whitehouse respectively. Votes of thanks to the retiring officers, Messrs. Wm. Davies and H. J. Weaver, were passed and carried unanimously.

A MODERN SYSTEM OF PROTECTING BUILDINGS FROM LIGHTNING.

By Mr. Killingworth Hedges, M.I.C.E., Hon. Secretary of the Lightning Research Committee (1905 Report).

(Concluded from last week.)

EACH chimney stack should have one air terminal projecting at least one foot above the highest cowl or chimney pot; where economy is an object the conductor itself can have its strands opened out so as to form points, but it is better to furnish it with a solid copper point with three barbs firmly fixed. Rods of tube with the points only screwed into a ball are not satisfactory, as they soon deteriorate. Both the horizontal and vertical conductors should be kept away from the structure; even if the roof is covered with lead or zinc a space is required to prevent dirt accumulating. The down rods should be held by holdfasts at least 2½ in. from the walls.

Material for Conductors.—The use of iron instead of copper has been advocated from time to time since the days of Franklin, but it was left to Sir Oliver Lodge to demonstrate the advantages it possesses, and show that a conductor of moderately high resistance such as an iron wire would get rid of the store of energy contained in a flash in a slower and therefore quieter manner than the ordinary copper pipe or cable. A special make of iron cable which is coated with lead has been introduced, and should, if carefully jointed, last as long as copper.

Joints.—Rule 7, L.R.C., states that "Joints should be held together mechanically as well as connected electrically, and should be protected from the action of the air, especially in cities." It is hardly necessary to remark that if the plan described of using the metal work of the building—rain-water pipes and gutters—is employed, great care must be taken to see that there is electrical conductivity throughout the system. For the purpose of testing, a joint which can easily be disconnected should be inserted on each conductor leading to earth.

Earth Connection.—It is essential that the lower extremity of the conductor should be of copper, or suitably protected if of iron, and be buried in permanently damp soil; hence proximity to rain-water pipes and drainage pipes is desirable. The earth-plate should not be of less area than three square feet, and should be buried in permanently wet earth and surrounded with charcoal well packed round it. The conductor should be rivetted as well as soldered to the plate. Moisture is essential in order to obtain a moderately low electrical resistance; an earth which may test well at first may become almost useless if the soil in which the plate is buried is dry, so that it is often necessary to dig a very deep hole. In order to overcome this difficulty the tubular earth has been specially designed. It consists of a perforated steel spike driven tightly into damp ground and lengthened up to the surface by screwing on thick iron tubes, into which the conductor is dropped to the bottom and surrounded with granulated carbon; the top of the tube is fitted with a cast-iron piece containing a socket through which the cable is threaded and jointed with lead. A cap at the surface marks the position of the earth, and a watering-pipe fitted with a strainer is led to the nearest rain-water shoe, a small quantity of water being deviated to ensure the necessary moisture. "The resistance of a tubular earth on this plan should be very low and practically constant." (L.R.C.) A very good earth can be obtained by connecting to water mains if of cast-iron; gas pipes should be avoided. If there is a lake or stream in the neighbourhood it could be utilised, but to insert the conductor is not sufficient; it must be submerged for a considerable distance, and preferably forked into two or three branches.

Steel framed buildings are rarely damaged by lightning. The metal itself, if care is taken to see that it is suitably earthed in several places, forms an excellent conductor, but should be furnished with the usual amount of air terminals. This does not apply to ferro-concrete structures, as in many forms the metal ties are not continuous; a flash entering walls of this description would probably do much damage.

In conclusion, the question to be studied with regard to the protection of a building is that if it is worth doing at all it is worth doing thoroughly. With the exception of buildings such as churches with spires, or those with high towers where at least two down conductors should be fixed, the unit rod is of little value. The conductor on the highest point gives no security to other portions of the building; the stroke may disregard the spire of a church and fall on any portion of the nave. The question of expense then is not the erection of a rod or rods, but the amount of money to be spent on the entire system. Usually the question of the maintenance of a building is of sufficient importance that a certain sum is allowed for to keep it in repair, which would be increased by so little to keep a well-designed system of lightning conductors in order that the amount is hardly worth consideration, so that the only point to examine is the first cost.

As an object-lesson, the flash which struck the Royal Horticultural Society's Hall in Vincent Square last year may be quoted. Almost simultaneously with the clap of thunder the chimney stack on the outside wall received the full shock of a very powerful flash. The building has a system of conductors designed by the author which so far succeeded in dissipating the energy that the actual damage was confined to shaking off a few tiles from the top of the stack and the destruction of the pot, the air terminal being bent by the force of the impact, but not broken. Without this protection most probably the massive retaining wall would have either been split or much damaged.

THE ROYAL SANITARY INSTITUTE.

THE twenty-sixth annual Congress of the Royal Sanitary Institute is this week being held at Belfast under the presidency of the Right Hon. Lord Dunleath, D.L., J.P., who on Monday last delivered the inaugural address, in the course of which he said:—

The first words which I have the honour to address to you at this twenty-sixth Congress of the Royal Sanitary Institute must be to congratulate you on the selection of Belfast as your meeting-place; and I congratulate you with greater cordiality because I am an Ulster man, and a member of a family which, during the past century, has been intimately connected with this city, especially during the earlier stages of its growth and of its industrial development.

This city, as you know, is the largest in Ireland; it is also the commercial centre and metropolis of the most prosperous part of this island. On the present occasion, however, we are concerned more with the efficiency of its sanitary administration than with either its magnitude or its importance. In fact, I venture to think that our claim to the privilege of being chosen as the meeting-place for a great Congress of this character should rest upon the forward position this city has taken up on the path of sanitary progress.

Here you will find a prosperous community, with very few signs in their midst of extreme or widespread poverty. Unemployment, or insufficiency of employment, seldom threatens to become a serious social problem. In fact, if a low rate of pauperism may be accepted as a sufficient index of prosperity, we may consider ourselves as exceptionally fortunate; recent Local Government Board statistics have shown that Belfast has almost, if not quite, the lowest rate of pauperism amongst all the urban districts of the United Kingdom.

We claim, however, to be looked on not only as a progressive city generally, but as a city more especially progressive in the direction of sanitary improvement.

We have been fortunate enough for many years past to be governed by municipal authorities distinguished by their energy, their ability, and their public spirit. Some evidence of their labours is to be seen in a large and efficient system of city drainage (now approaching completion); in the acquisition of a plentiful supply of the purest water, from a remote range of mountains, to meet the requirements of a rapidly increasing population; in the erection of a splendid fever hospital; above all, in the demolition of numerous insanitary houses, and in the sweeping away of large areas of dark and narrow streets and alleys.

Moreover, an additional improvement scheme for the clearing and replanning of an extensive insanitary area has been sanctioned, and, at the present moment, is in the early stages of execution. This scheme provides for the taking up of 16½ acres of land, and for the demolition of 1,075 dwelling-houses and three school-houses.

Much, however, still remains to be done on these lines. The Sanitary Committee of the Council, in addition to what may perhaps be called their routine duties, will no doubt be fully occupied for many years to come with the promotion of further schemes of housing reform. Some of us, in fact, are sanguine enough to anticipate that in the course of the next few years every subsisting insanitary house will be demolished, and every subsisting insanitary area clean swept and replanned.

It is certainly most satisfactory to note that, following the sanitary reforms to which I have just referred, there has been during the last few years a corresponding decline in the mortality rate. Not only has the total death-rate fallen steadily year by year, but the death-rates from tuberculosis, and from each one of the principal infectious or zymotic diseases, have at the same time been substantially diminished.

The City Council are now enabled to assert with confidence that their past expenditure on sanitary improvement has been amply justified by results. Encouraged and stimulated by the victories already won, they will no doubt press forward with renewed zeal and devotion to further sanitary conquests.

His lordship then proceeded to give a sketch of the position of sanitation—or the want of it—fifty years ago, and to contrast that with the present state of affairs. He laid especial stress on the question of tuberculosis, and treated at length of the necessity for further endeavours in combating this scourge of humanity.

Dr. Louis C. Parkes lectured to the Congress on "The Prevention of Tuberculosis: a National Task."

In the section of Engineering and Architecture the presidential address was deliverel by Mr. W. Kaye Parry, M.Inst.C.E., F.R.I.B.A. (Fellow), who said:—

The present Congress of the Royal Sanitary Institute in Belfast recalls the meeting which was held in Dublin in 1884, and suggests a review of the period which has elapsed since the former gathering, in order to see how far the country has advanced in questions bearing upon the *Salus generis humani*, the well-known motto of the Institute.

On the former occasion a paper was read by Dr. Edgar Flinn on "The administration of the Public Health Act in Ireland with regard to the duties of Medical Officers of Health."

This paper is not cheerful reading. The author deplores the apathy of the authorities and the inaction of the Local Government Board. He states that the working of the Public Health Act in a great majority of districts has become well-nigh a dead letter, and he asserts that the dwellings of the poor are a fruitful source of disseminating disease.

After alluding to the prevalence of fever in all its forms, he asks: "Where does the fault lie? Are the people responsible for the filth amid which they live?" "If," he asks, "there be a Public Health Act in force, why are its provisions not strictly and properly carried out?" He proceeds to point out that the duties of a sanitary officer in Ireland are of no ordinary character. On the one side he "has an unwilling sanitary authority opposed to all measures of health reform, bitterly hostile to any sewage, water, or other scheme that may involve an expenditure from their incomes; and on the other side a disinclination on the part of the people to submit to sanitary legislation and accustom themselves to habits of cleanliness."

Could such a description be said to faithfully represent the state of things which obtains in Ireland to-day. Surely all must realise that a great change has taken place during the last quarter of a century, and it is a subject for congratulation that although in the matter of public health administration we are not what we ought to be, and we are not what we hope to be, yet we may thankfully add we are not what we were.

The passing of the Local Government (Ireland) Act in 1898 constitutes a notable landmark in the history of public health administration. Prior to that date the powers possessed by local authorities, especially in rural districts, were very restricted. The system of grand juries and boards of guardians, which worked fairly well as regards the maintenance of the roads and the care of the paupers, offered no facilities and gave few opportunities for effective public health administration, so that outside the urban districts little could be done, either as regards drainage, water supply, the erection of labourers' dwellings, or other works of sanitary reform.

After the passing of the Act the rural district councils were enabled to undertake many works which were sadly needed, and which could never have been attempted under the old system.

Grave doubts were expressed as to the wisdom of entrusting to these councils the extended powers which were then conferred upon them, and it was feared that the Local Government Board would find it impossible to control their actions and to induce them to make a proper use of their opportunities.

There were many people who were sceptical as to the ability of our fellow countrymen to rise to the occasion, and to unite for the purpose of putting into operation the provisions of the Act.

Doubtless very many mistakes were made at first. This could hardly be otherwise, and the patience of the officials of the Local Government Board must have been sorely tried. It is probable that there are still men who will assert that the local authorities have not made a good use of their opportunities. From time to time angry scenes are recorded in the newspapers as having occurred at council meetings, and excited councillors have threatened to defy, and in some cases have succeeded in paralysing, the action of the controlling authority. But an impartial and honest observer can hardly fail to admit that, having regard to their lack of experience, and their warm, impulsive natures, Irish district councillors have on the whole shown an unexpected aptitude for local government.

What they may lack in the cool judgment and steady, plodding perseverance of the average Englishman is compensated for by their superior intelligence and ready appreciation of the advantages derivable from modern sanitary reform. Those who are brought into contact with the members of these local boards cannot fail to be struck with the grasp which they often display of some of the complicated details of works of engineering, and the keenness which they show in studying and criticising the schemes which are brought before them by their professional advisers. The Englishman who fancies that the Irish farmers and shopkeepers are his intellectual inferiors will suffer a rude awakening when he is brought to book by one of the representative members of a small rural district council.

What, then, is the record of the public health work which has been done under the Local Government Act? There are many ways of making a comparison between the condition of Ireland as regards what Sir John Simon calls "modern sanitary institutions" in the year 1900, immediately after the passing of the Act, and the year 1910. Perhaps one of the most reliable methods of instituting such an inquiry is to compare the annual reports of the Local Government Board in Ireland for the two years just mentioned.

The report for the year 1900 gives an excellent account of the establishment of the new machinery for local government, and it also furnishes valuable statistics which can be placed beside the corresponding figure for 1910 with a view to ascertaining whether the decennial period gives indications of progress and improvement.

Perhaps the disease which gives the best indication of improved sanitation during the period under review is enteric fever, and from the same report it will be seen that whereas in the year 1900 there were 1,038 notifications and 99 deaths, in the year 1909 there were only 418 notifications and 51 deaths. In order to ascertain the improvement in the health of Belfast County Borough it is necessary to go back a little further. It will be gratifying to the citizens in this great and growing centre to find that whereas in the period between 1889 and 1893 the average death-rate was 26.6 per 1,000, in the period between 1904 and 1908 the average death-rate was reduced to 20.3 per 1,000; whilst in the case of the principal epidemic diseases, whereas the rate during the former period was 4 per 1,000, the corresponding rate for the latter period had sunk to 2.1 per 1,000. This is a very striking reduction, affording excellent evidence of improved sanitary administration in the city in which this Congress is being held.

The report of 1910 contains some observations also as to the working of the Public Health Acts in the country at large. The figures for 1909, we are told, exhibit some hopeful features, as the general death-rate for the towns has fallen for the first time on record below 20 per 1,000, the death-rate from the principal epidemic diseases is represented by the very moderate figure of 1.4 per 1,000, and the mortality from tuberculosis has undergone a substantial decrease.

Belfast County Borough furnishes some valuable statistics as regards the reduction in the number of notifications of enteric fever and simple continued fever within the period under review, for whereas in 1904-1905 the total number of notifications of cases of these diseases amounted to 1,065, during the years 1909-1910 the number had decreased to 133, and with the exception of the years 1905-1906 the figures show a steady and a most encouraging reduction.

The cases of fever, other than scarlet fever, which were treated in the dispensary districts in Ireland in the year 1903 were 2,619, whereas in the year 1910 the corresponding figure was only 1,041. There has been, indeed, a very remarkable falling-off in the number of fever cases in Ireland since the passing of the Public Health Act in 1878, when nearly 11,000 such cases were reported, the figures for the year 1910 being the lowest on record.

The administration of the Dairy, Cowsheds, and Milkshops Order of 1908 has already had a beneficial effect. An improvement is noticeable in the conditions affecting the public milk supply, the great majority of the urban districts having appointed verterinary surgeons to administer the order, and at the date of the 1910 report it is recorded that 216 out of 308 sanitary districts had taken the necessary steps to control the milk supply, and 6,651 persons had been registered as carrying on the trades of cowkeepers, dairymen, or purveyors of milk.

Smallpox is also one of the diseases which has been most successfully grappled with, for during the year 1910 the country was entirely free from this disease.

On the other hand, the large number of cases of those diseases which are scheduled under the Notification of Infectious Diseases Act of 1889, which have still to be dealt with, is indicated by the tables which show that in the year 1910 the total number of cases so notified in the urban and rural districts in Ireland amounted to 8,406.

Many of the figures which have been quoted may perhaps be regarded as having only an indirect bearing on the relation between the work of the engineer and the improvement in the health of the population, but the statistics of loans for schemes of sewerage, water supply, and similar works may fairly be claimed as affording direct evidence of the improved conditions of the country, due to the labours of members of the engineering profession.

Typhus fever has not been eradicated with as much thoroughness in Ireland as smallpox, as the notifications in 1910 number 182, as compared with 162 in the previous year, but the increase is more than accounted for by a local outbreak in Belmullet Rural District, where we are informed its appearance was associated with gross insanitary conditions, domestic overcrowding, and the keeping of animals in dwelling-houses. It may reasonably be anticipated that in the near future typhus will be banished from our island when the plague spots have been subjected to drastic reform, and the people have learned to appreciate the inestimable benefits of personal hygiene.

The loans granted to county councils are mainly in respect of the maintenance of the lunatic asylums, and in the main roads. At the present time the outlay on asylums is much less than it was some years ago. Not, alas! because insanity is on the decrease, for such is not the case, but rather because the country is reaping the benefit of the large sums of money which were expended by the Board of Control of Lunatic Asylums during the existence of that body.

Attention should be directed to the provisions of the Act of 1898, under which the Local Government Board continue to pay to urban and rural district councils certain sums in respect of the sanitary salaries paid by those bodies. It would seem that owing to these State contributions the Local Government Board exercise some control over the salaries paid to sanitary sub-officers.

In Ireland these salaries are very small, and as a direct consequence the sanitary sub-officer is not as highly trained nor as well qualified as might be desired. It would be a material benefit to the health of the people if these positions were made more lucrative, in order to secure the services of officials of the same class as the English sanitary inspectors, very many of whom hold the certificates of the Royal Sanitary Institute. If the Irish members were to take this matter up in earnest, there can be no doubt but that a more liberal contribution could be obtained from the Imperial Exchequer; and if such were the case an appeal could be made to the sanitary authorities to make a proportionate increase in the salaries of their staffs.

Public opinion as regards health questions is not nearly so advanced in Ireland as in England, and one obvious way of improving the sanitary condition of the people is to raise the status of the sanitary officers.

The comparatively lax administration of the Public Health (Ireland) Act of 1878 is doubtless partly attributable to the difference between this Act and the corresponding English Act of 1875, as regards the appointment of medical men and inspectors.

Under clause 189 of the English Act sanitary authorities are empowered to appoint "fit and proper persons" to be medical officers of health and inspectors of nuisances, and the words quoted suggest that those appointed should be qualified for their positions.

Under clause 11 of the Irish Act every doctor of a dispensary district is made *ipso facto* the medical officer of health for the said district; and, without desiring to cast reections on the officers so created, it is notorious that many of them are still both wholly ignorant of, or else entirely indifferent to, their duties. Sometimes only a beggarly pittance of a few pounds a year is grudgingly paid to them, and then they would be more than human if they exerted themselves zealously to enforce the provisions of the Sanitary Acts, even when they are familiar with them, as many of the chief offenders are frequently their private patients.

In Ireland also the so-called executive sanitary officer is usually the clerk to the local authority, and has often no practical knowledge of the administration of the various Health Acts, and the sanitary sub-officers are not infrequently conspicuous only by their sublime indifference to the elementary principles of sanitary science, their apathy and ignorance of the rudimentary laws of health, and their neglect of the duties which they are supposed to perform. Nor can any better men be expected to accept these posts until their superior officers are trained and qualified medical men holding some recognised diploma in public health, and until these medical officers are properly paid for their services.

Having regard to the inherent defects in the selection and organisation of the health officials under the Act of 1878, it is remarkable that in the absence of a perfectly-trained staff, and in the face of insufficiently-educated public opinion, such substantial progress as that which is supplied by the figures which have been quoted has been made. Much of the credit is doubtless due to the Local Government Board and its medical and engineering inspectors, who may be said to constitute an intelligence as well as an administrative department.

Did time permit, some reference to the improved housing of the artisan and labouring classes which has resulted from the operations of the various Acts relating to this question would prove interesting, but it is only possible to point out that the benefits which have accrued to the country from the Labourers' Dwellings Act are perhaps greater than might at first appear. Not only are the cottages which have been erected under this Act calculated to improve the health and comfort of the class by which they are tenanted, but the presence of these houses is sure to have a stimulating effect upon the welfare of the nation, and has probably assisted in reducing the losses resulting from emigration. As soon as our young men and women find that not only can they obtain employment in the country, but that they can also secure a comfortable home at a rent which is in proportion to their earnings, it is to be hoped and anticipated that many of those who would otherwise have left our shores may see their way to spend their time at home and do their share in building up a healthy, contented, and prosperous nation.

CALCULATIONS FOR RETAINING WALLS.

(Continued from last week.)

7.—*The Strength of a Joint.*

THERE is another factor besides its own weight which will assist the wall to resist the overturning effect of the wind, and this is the strength of the joints. If this factor did not assist it would be wiser to build the wall "dry" as it would be heavier.

In fig. 3, assuming that the wall would be overturned as shown by dotted lines, the joint AB would open, the brickwork below the joint remaining at AB, that above the joint lifting up as AD. The two bricks D and B, being cemented together, will require some force to pull them apart, and this will depend upon the adhesion of the mortar.

The adhesion of some mortars is very small and negligible, but others have a strength which is certainly worth taking into account. (*See* Table III.)

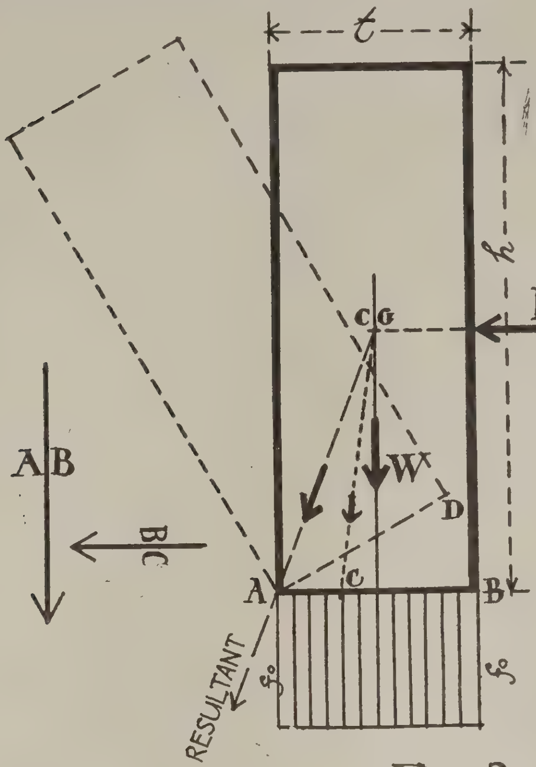


FIG. 3

The force moving D from B being a "pull" is called "tension," and is the opposite of compression.

It will occur later that at some point a joint has a "negative compression" upon it, which means, of course, a tension, such as between D and B.

Table III.

Safe adhesive strength of Mortar Joints.

Materials.	After Twelve Months.		Values Adopted in General Practice. Tons per Square Foot.
	Pounds per Square Inch.	Tons per Square Foot.	
Common brick in grey lime mortar .	7	0.45	0.25
,, ,, lias lime mortar .	14	0.90	0.75
Blue ,, ,, ,, .	24	1.54	
Ashlar masonry in ,, ,, .	24	1.54	
Hard stocks or ashlar masonry in cement mortar (1 to 3) . . .	30	1.93	1.00
Do. in neat cement mortar . .	60	3.85	

8.—*The Effect of the Wind-pressure.*

If the wind is strong enough it will blow the wall over in the manner indicated by dotted lines on fig. 3, and the wall will overturn about A. The point A, if the material does not crush, will act like a hinge. Let us consider the forces acting about A. We have the force W, tending to turn A in a clockwise direction—producing a "moment about A" (*i.e.*, in the direction of the hands of a clock)—and we have the force P producing a moment in the opposite direction.

Referring to our windlass in fig. 2. If we have a sailorman, called W, pushing as indicated by the arrow at G, and another, called P, pushing in the opposite direction at F, the two will hinder each other from turning the windlass.

The turning capacity or "moment of P" is P × CF, and if W is W × CG, and the windlass will turn in the direction of the greatest moment, the actual value of the resulting moment being the difference between P × CF and W × CG.

We call the direction of P × CF positive "+," and the direction of W × CG negative "—"; then the "resultant" moment or the "moment of the resultant" is the algebraical sum of + (P × CF) and — (W × CG).

9.—*The Stability of the Wall.*

From this last it will be seen that if the wind blows the wall over it means that the moment of P (fig. 3) about the hinge A is greater than the moment of W about A, and in order to produce stability, and nothing more, these two moments must be equal:—

$$P \times \frac{h}{2} = W \times \frac{t}{2}$$

where h is the height and t the thickness of the wall.

The condition thus produced is known as one of "unstable equilibrium."

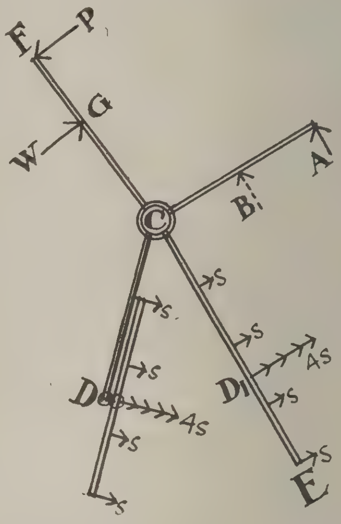


FIG 2.

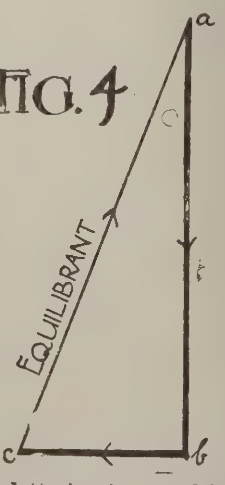
Now if the forces P and W produce no moment about A (their moments being equal and opposite) they must have affected each other in such a manner as to alter their directions until they actually pass through A.

It will be evident upon examination that any force not passing through A must produce a moment about A. Therefore the combined effect of P and W is a force through A called their resultant, and as both P and W are taken as acting through CG the resultant force must be one passing through A and CG. (The "resultant" of any number of forces is the name given to one force which may be used in place of the others.

10.—*The Triangle of Forces.*

This reasoning may be proved graphically by what is called the triangle of forces. In fig. 4 we have drawn a vertical force and put a letter on each side of it. As this force is acting downwards, or as it is applied at some point below the letters, its name is AB; if it had been acting upwards or applied at some point above the letters its name would have been BA.

FIG. 4



Notice that the lettering is named in a clockwise direction about the point of application of the force.

AB, then, will represent W, and BC will represent P.

Now draw a vertical line ab to scale, representing by its length the magnitude of W. Small letters are used, and their order gives us the direction of the force.

Following this direction we arrive at b and draw bc parallel to BC, and of magnitude P to the same scale as ab.

Take care that P and W are expressed in the same units (tons, cwts., lbs., &c.).

If the "closing line" *ca* be now drawn, a triangle will be obtained whose shape cannot be altered, which is complete in itself and has no effect upon anything outside of it.

The force necessary to produce this effect is *ca*, and is called the "equilibrating force"—*i.e.*, the force which is necessary to obtain "equilibrium" or "rest."

As *ca* will withstand W and P it must be equal to, but opposite in direction to the resultant which would represent these two forces.

The resultant of W and P is therefore *ac* in magnitude and direction, and its point of application will be the intersection of W and P.

If this force be now transferred to fig. 3 and drawn from CG, it should pass through A in order to have no moment about A. If this is so we have arrived at the same result graphically as mathematically in paragraph 9.

(To be continued.)

MODERN ELECTRIC WIRING PRACTICE.

(Concluded from last week.)

With regard to the new Institution of Electrical Engineers' Wiring Rules, the alterations of most general interest were contained in the table of carrying capacity of cables—the new values having been determined by experiment under working conditions, and set out in relation to length of conductor and unit pressure drop. Although these new limits were only about 60 per cent. of the values allowed by the Verband Deutscher Elektrotechniker, they represented a great practical advance, and should reduce wiring costs, whilst allowing a good factor of safety against increase in loading, which might take place after an installation has been put into service.

The speaker expressed the hope that discussion upon some of the points which he had raised might assist in standardising the practice of wiring in small premises, and help to evolve a specification which will enable builders and property owners to put in electric light wiring with the same confidence that they now have in ordering the standard work of the plumber and gasfitter.

The following criticisms of the Institution of Electrical Engineers' new wiring rules had also been prepared by Mr. Beauchamp.

No. 18. *Light and Heat.*—Separate main fuses to be provided for light and heat or power circuits. This is general practice, but many old installations do not comply and should be altered, as the growth of heating circuits will leave the lighting wires insufficiently protected where a common fuse is in use.

No. 23. *Lighting Sub-circuits.*—5 amp. limit increased to 6 up to 125 volts. 3 amp. limit maintained from 125 to 250 volts. These limits are possibly ample for all ordinary purposes in view of the increased lighting value of the watt resulting from the use of metal lamps.

Small Heating Sub-circuits.—15 amp. limit to 125 volts, 10 amp. limit to 250 volts. These limits appear to be insufficient in view of the increase in cooking; possibly the regulation was originally intended for radiators only, but, in its present wording, it is too indefinite to act upon, and it would appear that a regulation is required forbidding the use of switches on the body of any heater or on the flexible cord leading to it, otherwise the presence of a switch with the wall plug is very little protection, as the one which is the easiest of access will, in most cases, be the only one used.

No. 25.—Is an amendment of the old Rule 23 and is apparently designed to permit the use of wiring of the "Stannos" class, in which it has been shown that the inductive drop in the metallic sheathing is so small as to be negligible for all ordinary purposes.

No. 27.—Provides for earthing wires of not less than 14 S.W.G., and not less than 1 to each 50 amps. or part of 50 amps. normal working current, and furthermore that the earth wires should be protected against mechanical injury—an important provision—but one which is somewhat difficult to comply with, unless they are run in conduit. As has already been pointed out in this Paper, the weakness of all earth wires lies in the fact that loss of continuity does not interfere with the working of the installation, and that a long length of bare copper wire—which is frequently required to reach suitable earthing points—is very apt to become damaged by subsequent operations on the building.

No. 29.—The enclosure of Nernst lamps and holders within air-tight glass vessels has been the general practice in positions where gas and dust might give rise to danger, but experience with the metallic lamp has shown that its life is considerably shortened by enclosure in air-tight vessels, presumably as a result of the higher temperature at which the lamp is maintained, and there appears to be room for a fitting in which wire gauze or some similar substance plays a part in allowing a cooling ventilation and yet making it impossible for dust and gas to take fire as a result of lamp breakage.

No. 31.—Provides for fittings and tubing to be so arranged in bath rooms that personal contact with them is impossible. This regulation should be insisted upon and can generally be carried out with little difficulty—even in small rooms—if porcelain switches are used. It becomes the more necessary as insistence upon switches being placed upon the live wire is now becoming general.

No. 33.—The permissible drop in pressure remains at 2 per cent. with the addition of a standing figure of one volt, and in the case of power and heating wires is limited by temperature rise in cables, which should not exceed 20° Fahr.

No. 40.—Reduces the testing pressure for insulated conductors from 2,000 to 1,000 volts, and presumably will cover many classes of cable which have been in general use for a long time.

No. 43.—Applying also to cable, dispenses with braiding where conduit or tubing with a polished inner surface is employed, meaning presumably enamelled steel conduit.

No. 45. *Flexibles.*—The stringency of the test on flexible cords is maintained. An addition might be made here with advantage to the effect that fittings exceeding a certain weight including lamps and shades be separately supported by a wire or chain other than the conducting cord.

No. 49*a*.—Providing for conduit to be earthed and metallically continuous throughout. This regulation also states that slip socket conduit does not comply—some form of screw or grip fitting being necessary, and such fitting to be put on in a manner to secure the conductivity of the joint being equal to that of the tubing. This regulation is far-reaching, and apparently puts the great majority of conduit installations beyond the pale of the Institution Rules—a somewhat serious matter; in the writer's opinion it is both undesirable and impossible to bar good quality slip pocket conduit and fittings for general house and shop work; admittedly, unless they are metallically continuous, the earthing regulation constitutes more danger than safeguard, although experience demonstrates that the danger is extremely small.

No. 49.—In 49*d* it is provided that in dry places, isolated single lengths of conduit need not be earthed if adequately enamelled or insulated outside. This is brought forward from the old regulations and presumably has in view short pieces of conduit used for switch runs and similar purposes, but it is worthy of consideration whether for the great majority of house work, conduit should not be used with definite and intentional insulation between each length; this could be provided without increasing cost by the use of sockets made of insulating material or steel-lined with some insulator; it would then be only necessary to earth lengths of conduit within reach and situated in places which might, at times, become damp—such as basement sculleries.

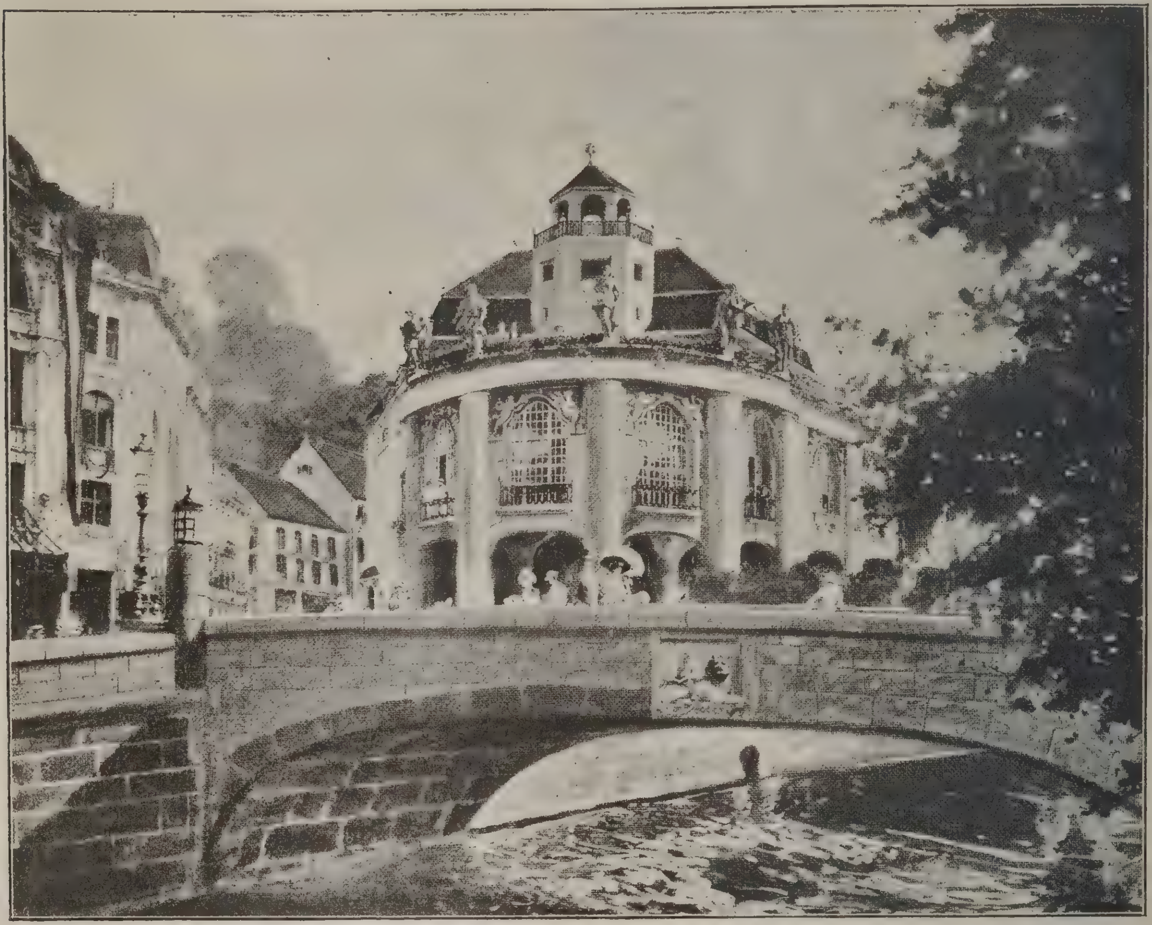
It appears obvious that supply engineers have to take a definite position with regard to conduit wiring. By insisting upon screwed work, price is raised to a point at which a certain class of business may be lost. By permitting slip socket systems to be put in and earthed in the usual manner the protection obtained is illusory, although danger is proved by statistics to be minute, and the new regulations are not complied with.

No. 52.—Allows the use of flexibles for sub-circuit wiring excepting in factories, workshops, warehouses, and public resorts, provided that they are:—

- Within sight.
- Protected from injury.
- Carried through walls in water-tight and incombustible tubes.
- Not carried through floors and protected where within 4 feet of floors.
- Firmly supported on insulators not more than 3 feet apart.

MODERN EUROPEAN ARCHITECTURE.

GERMANY.



[From *Der Architekt.*

COMPETITION DESIGN FOR KURHAUS BUILDING, CARLSBAD.—By Professor Emanuel Von Seidl, Architect.

Jointed mechanically in suitable boxes and fittings.

Nos. 58 & 59.—Allow concentric systems with the outer conductor uninsulated and earthed, such sheath conductor to be of a metal not readily corrodible.

Such systems being only permissible

Where separated from the supply network by double wound transformers.

On private plants.

Or where local earthing of the network on consumers' premises has been sanctioned by the Board of Trade.

(The latter method of working is on trial at present and results will be of considerable interest.)

Earthed concentric systems to be furnished with S.P. switches only.

To be completely concentric throughout up to fittings outlets.

To be earthed at service connection.

The outer sheath to be brought well into fittings, so that it lies between surface on which the fittings are mounted and the inner conductor.

Fuseboards to be S.P. with outer conductors bunched and connected to the case when metal, otherwise to be connected to a sheet of metal of full size at the back of the fuseboard.

Metalwork of fittings to be connected to the outer conductor.

Potential drop in the outer conductor from the earthing point to the farthest lamp not to exceed 7 volts at normal full load current.

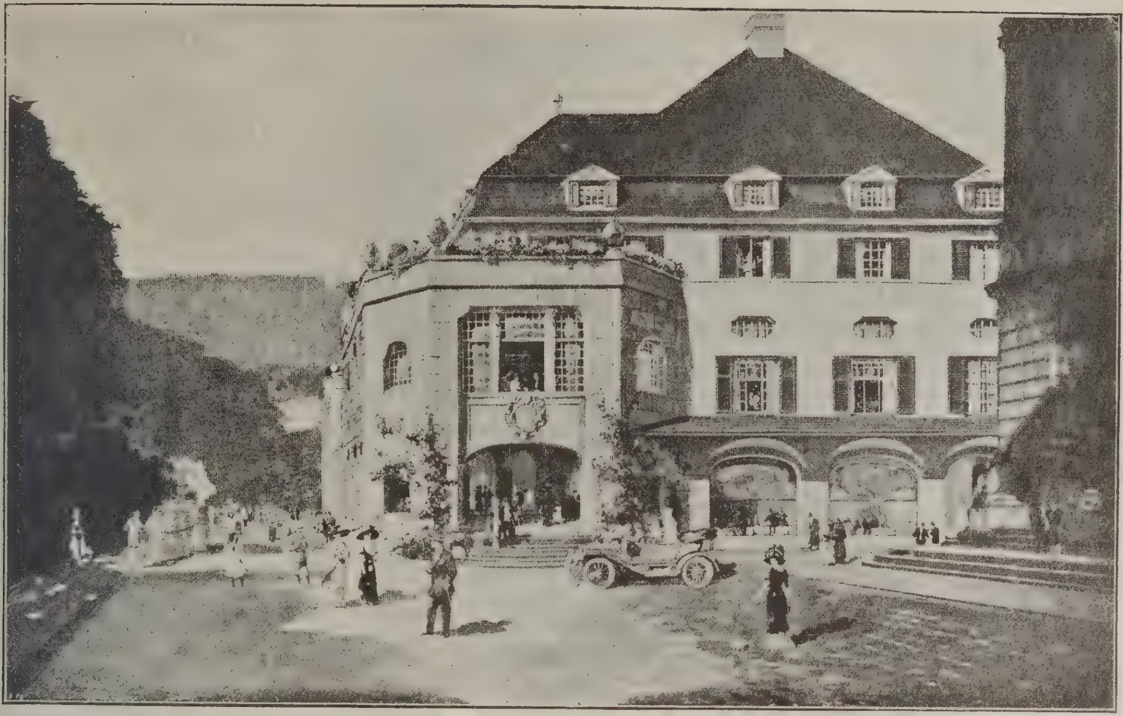
It would appear necessary on systems of any magnitude to ensure that the outer conductors shall not make contact with low resistance earth connections other than the one provided at the source of supply.

Mr. S. E. Fedden (Chief Electrical Engineer, Sheffield) said that even with gas as cheap as it was at Sheffield there was no difficulty in having electric light adopted in houses of a rental of £30 per annum, provided they had not already been piped for gas, if they could only get the builders to wire when erecting the houses. He had hopes they would get the £20 houses also. Although not an advocate of jerry work, he thought that some of the ideals of the regulations would have to be dropped in the future if the small houses were to be got at. The wiring of small houses could be reduced from 8*s.* to 12*s.* to 4*s.* or 5*s.* per point by using slip tubing up inside the plaster of the walls, and wiring under the floors by boring the joists. The work in the joists was absolutely safe if the wires were placed far enough apart, and they need not worry about amperes per square inch. For many years he had indulged in the extravagance of 70/40 vulcanised flexible, as when he first went to Sheffield there was much trouble with flexible wires. But having got back the confidence of the consumer he was now rather inclined to drop this expensive flexible, and to go back to the cheaper one permitted by the Institution Rules. He did not think the question of earthing needed considering except in wet places, when he preferred screwed conduit connected to a good earth. He had known cases, however, where the use of voltage reducing transformers had increased the consumption instead of reducing it, owing to the enormous magnetising current losses. He thought the price of "Stannos" wire too high; he was sure that the manufacturers could afford to reduce it by about one half. He gave the following particulars of an estimate for a definite job as showing how "Stannos" wire came out. Wood casing with 600 megohm cable, £35. "I.M.E.A." flexible was £35. "Simplex" steel-armoured flexible, £41 10*s.* "Stannos" concentric, with double-wound transformers and earthed outer, £42 10*s.*

Mr. F. M. Long (Chief Electrical Engineer, Norwich) said that fourteen years ago they started the free wiring of small houses in Norwich, and it had been entirely satisfactory. The larger portion of their 5,000 consumers were now wired in this way. Many houses of £16 and £10 yearly rental were dealt with. Nearly all the troubles with wiring were electrolytic, and were not caused by over-loading; con-

MODERN EUROPEAN ARCHITECTURE.

GERMANY.



[From *Der Architekt.*

COMPETITION DESIGN FOR KURHAUS BUILDING, CARLSBAD.—By Professor Emanuel Von Seidl, Architect.

quently they had to differentiate between work intended r damp places and that to be used in dry places. In dinary private houses much cheaper material could be used, nd the wires were attached to the joists between the floors. ith new houses that were being built, they tried to fix bes on the walls for the switch wires before the plastering as done, but he had not found the close joint tube satisfctory for this work, as trouble arose from the moisture in e plaster. It was more satisfactory to use solid tube. ith work of this sort, earthing was not at all necessary. e had found pure rubber insulation, double jacketed, the ost suitable for flexible; it was less trouble and cheaper an vulcanised.

Mr. W. A. Vignoles (Chief Electrical Engineer, rimsby) pointed out that the question of wiring on easy rms was an important matter, and might be discussed in nnection with cheaper wiring. It seemed to him very cessary for every town in the kingdom to have wiring wers, and notwithstanding the failure of the conference th the contractors, he hoped the Council were bearing the atter in mind, and that steps would be taken to promote a ll in the future. He did not think there was such a thing a good slip-joint conduit system. Every one was utterly d, and ought not to be used under any pretence whatever. ke Mr. Long, he had also largely used wires threaded rough the joists. Single lead-covered wires were run some stance apart, and holes drilled in the centre of the joists, d the wires threaded through, tubes being put in to protect e wires when they came down to the switches. This had oved quite satisfactory. He used paper-insulated leadvered wire, and simply taped the ends. He earthed the d or conduit to the lead-covering of the service cable. He ought it was necessary to earth even in private installaons, because frequently the gas pipes were left in, and the ole of the gas supply was not cut off, and it was very diffilt to ensure that the workmen had not allowed the conduits the lead-covered wires to touch the gas pipes. It seemed him that the cost of wiring could be considerably reduced the use of a double-wound transformer and 25 volt lamps, which case there was absolutely no necessity to use fuses of y kind.

Mr. F. Ayton (Chief Electrical Engineer, Ipswich) said still pinned his faith generally to wood casing. In dry aces a cheaper quality rubber wire could be used, and in mp places casing could be made reasonably safe by using rcelain roller insulators and coating the casing with a terproof paint. The weak point in wiring work was the flexible. A very important point was the rating of switches, and it was one which ought to be taken up either by the Association or the Engineering Standards Committee. They should be rated on the wattage basis, and not in amperes. They also wanted some standardisation in switches and ceiling roses in regard to the position of the entry holes for the wiring through the block. Standardisation could also be carried to wall plugs, as there was difficulty in getting interchangeability, especially with china plugs, which were easily broken. When sending round irons on approval, in every case he sent a Pragnell adapter, which enabled the consumer to use the light whilst he was trying the iron.

Mr. A. J. Cridge (Electrical Co., Ltd.) urged the necessity of not reducing quality too much in the effort to cheapen wiring. He also said that the assistant entrusted with the testing of installations should have common sense, and should not have so great an idea of his own importance as to enforce regulations in cast-iron fashion.

Mr. W. A. Walker (Chief Electrical Engineer, Kettering) said that he had drawn up a schedule of prices for wiring houses upon which any contractor could canvass, and for screwed conduit the price per point was 22*s.* against 22*s.* 6*d.* in the paper. This included pendants and lamps. He paid per point for wood casings 19*s.* against 17*s.* 6*d.* in the paper, but he thought the latter figure was too low. Was the wood treated with shellac, or was it plain?

Owing to the shortness of time, Mr. Beauchamp will reply in the Proceedings.

OUR CONTEMPORARIES FROM OVERSEAS.

THE *American Architect* (New York) illustrates fully by photographs and reproductions of working drawings the recently-completed Union Passenger Station at Worcester, Mass., of which Messrs. Watson & Huckel are the architects. The issue also contains illustrated articles on the replanning of Philadelphia and on the illumination of the cathedral of St. John the Divine, New York.

Der Architekt (Vienna) contains illustrations of the Austrian pavilion at the International Art Exhibition now open at Rome, of a tenement house in the 17th Bezirk of Vienna, of a premiated design for the Law Courts at Sarajevo—all advanced "new art"—and, for contrast, a picturesque view of old work at Stein, on the Danube.

Arkitektur og Dekorativ Kunst (Christiania) gives an account of a competition for a branch library in the Schous

Plads, Christiania, with reproductions of plans and perspectives of several of the designs submitted. Proposed improvements in the town-planning of Lille Lungegaardsvand at Bergen are described and illustrated.

Arquitectura y Construcion (Barcelona) has a number of illustrations of the new cathedral at Vitoria, of which the architects are Don Francisco Javier de Luque and Don Julian Apraiz. The design is a very ornate conception in late Gothic treatment, somewhat reminding one in general lines of the Votive Church at Vienna.

La Construction Moderne (Paris) illustrates a quaint seaside cottage at Cayeux-sur-Mer carried out in brick and undressed flints, and hence named "Le Pavé." The architect is Mons. R. Faucon. A design for tapestry by the architect, Mons. Hannotin, is also illustrated, and the article on Baalbec is continued, with illustrations.

Construction (Toronto) contains an illustrated article on the recent catastrophic fire in a ten-storey building in New York by which 141 lives were lost, in which the illusive fire escapes there constructed are contrasted with some English examples. Recently erected buildings well illustrated are the new Victoria College Library building, Toronto, by Messrs. Sproatt & Rolph; the new Bonar Presbyterian Church, Toronto, by Mr. A. McKenzie Brydon; a small house at Port Credit, Ontario; and another at Geoffrey Street, Toronto.

Deutsche Bauzeitung (Berlin) continues its series of articles on modern school-buildings and crematoria. In the former the Reform-Real Gymnasium at Mariendorf, near Berlin, is described and illustrated, and in the latter the crematorium at Dresden.

Stone (New York) illustrates a fifteenth-century doorway by Antonio Gambello and Pietro Lombardo at the church of San Giobbe, Venice, and a chapel at Evanston, Illinois, which is a good example of the use of correct Perpendicular detail by Mr. John Sutcliffe. Failures of concrete and terra-cotta buildings are described in the interests of the stone trade and of masonry.

The *Western Architect* (Minneapolis) has an interesting article on the early architecture of New England, and of modern work illustrates the first Presbyterian Church at St. Joseph, Missouri; the Boston Building, Salt Lake City; the Y.M.C.A. building, Carlisle, Pennsylvania; an apartment building at Detroit, and some small detached houses.

Engineering Record (New York) describes a "cement gun" used for handling cement mortar by compressed air and applying it in any required thickness to iron or steel work or other base.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

King Edward Memorial.

SIR,—My avocation warranting giving all my time to Imperial matters externally prevents me in giving any time in joining issue with your excellent artistic weekly *a propos* the preposterous site selected for the above memorial to the most peacefully inclined monarch of all time. In my crude and amateurish power of observation I enclose a rough tentative sketch *a propos* a suggested site that appeals to my contemplative mind, viz. in the front of the birth-place of the World's White Queen Victoria, Kensington Palace, in the centre of the Round Pond, and with a grand sylvan vista down to the banks of the Serpentine, and for all budding Britannic scions to appreciate the maritime *tout ensemble* it suggests for all that, how this limitless realm of ours at heart, and to hand down untarnished and hallowed amidst peaceful surroundings, and having no duplicate of environment in the heart and centre of Britannia's realm.—Yours truly,

LIEUT. G. DAVIES, R.N. (retired).

July 24.

[Our correspondent's sketch is too rough for reproduction.—ED.]

Standard Catalogues.

SIR,—I have been surprised at the receipt during the past week of a circular from The Standard Catalogue Publishing Co., Ltd., intimating that five volumes of "Architects' Standard Catalogues," handsomely bound in half-cal leather, will be sent to me, carriage forward, at the end of Sep tember. The name of this publishing company is new to me but as the circular is addressed from Bloomsbury Hall, th office of the Architects' Technical Bureau, I can only presum that the Publishing Company and the Bureau are branche of the same concern, and that the present I am to receiv "carriage forward" is a duplicate of the circulars I hav paid for as a subscriber to the Bureau.

With these circulars, as with the information I cannot g from the Bureau, I am grievously disappointed, and I ha already contemplated discontinuing my subscription to th Bureau. This latest move settles the question. I cann understand how the eminent architects whose names appea on the publications of the Bureau can lend their suppo to this concern.—Yours, &c.,

F.R.I.B.A.

London Hydraulic Power Company.

SIR,—I am instructed to thank you for the notice this company's new pumping station in Grosvenor Roa which appeared in your issue of the 14th instant, but ther are a few inaccuracies to which I must call your attentio Messrs. Mowlem & Co., and not the Hydraulic Engineerin Co., of Chester, were the contractors for the reservoirs; th cast-iron tanks were supplied by the Horseley Compan and the boilers by Messrs. Babcock & Wilcox. The stea pressure on the pumping engines referred to in the la paragraph but one is 180 lb. and not 80.—Yours faithfull

T. M. BENDALL,
Secretary.

London Hydraulic Power Company,
Palace Chambers, 9 Bridge Street, Westminster, S.W

Hyde Park Corner.

SIR,—In face of the announcement which has been ma to the effect that a combination is prepared to give million sterling for the site of the St. George's Hospital order to erect thereon a new hotel, may I renew a propos I made more than two years ago?

At that time Colonel J. Charlton Humphreys had ju acquired the freehold of the Knightsbridge Estate, and n very shortly the houses in Trevor Square, and, indeed, t property on the whole estate, is to be taken down. N only are new buildings to be erected, but new road planni is proposed.

Here is a quiet spot in close proximity to Hyde Pa Corner, an ideal site to which the St. George's Hospit might be transferred from the extremely valuable, but, f the purposes of a hospital, most unsuitable site it now occ pies.

Such a change would at one stroke advantage a gre public charity and make available the unique site at Hy Park Corner, in many ways the most conspicuous in t Metropolis, for an opera house, or other building of a li character.

It can only be a question of time when the Hospit will be removed, and the site offers such opportunities f a public building that it would be a thousand pities for to be acquired for the purposes of an hotel.—I am, &c.,

MARK H. JUDGE.

7 Pall Mall, S.W.: July 24, 1911.

ANSWERS TO CORRESPONDENTS.

"JUSTICE" (C.F.).—Although you appear to have be treated very shabbily, you have no legal remedy in the abse of a contract in writing. A solicitor's letter might get y a part of the claim, but we cannot advise you to go farth

MESSRS. ASHLIN & COLEMAN, architects, Dawson Stre Dublin, have prepared plans and specifications for the co pletion of the tower and spire of St. Colman's Cathedr Queenstown.

THE foundation-stones of a new Training College at Swa sea were laid on the 20th inst. The College, when built, w accommodate 200 students, and the site, comprising nea twelve acres, is magnificently situated on the hill at Gla mor, overlooking the Swansea Bay. The building will faced with native stone and Forest of Dean stone dressin The contract price is £37,317 19*s*. 11*d*. Messrs. Lloyd Br are the contractors, and the architect is Mr. S. E. T. La rence, F.R.I.B.A.

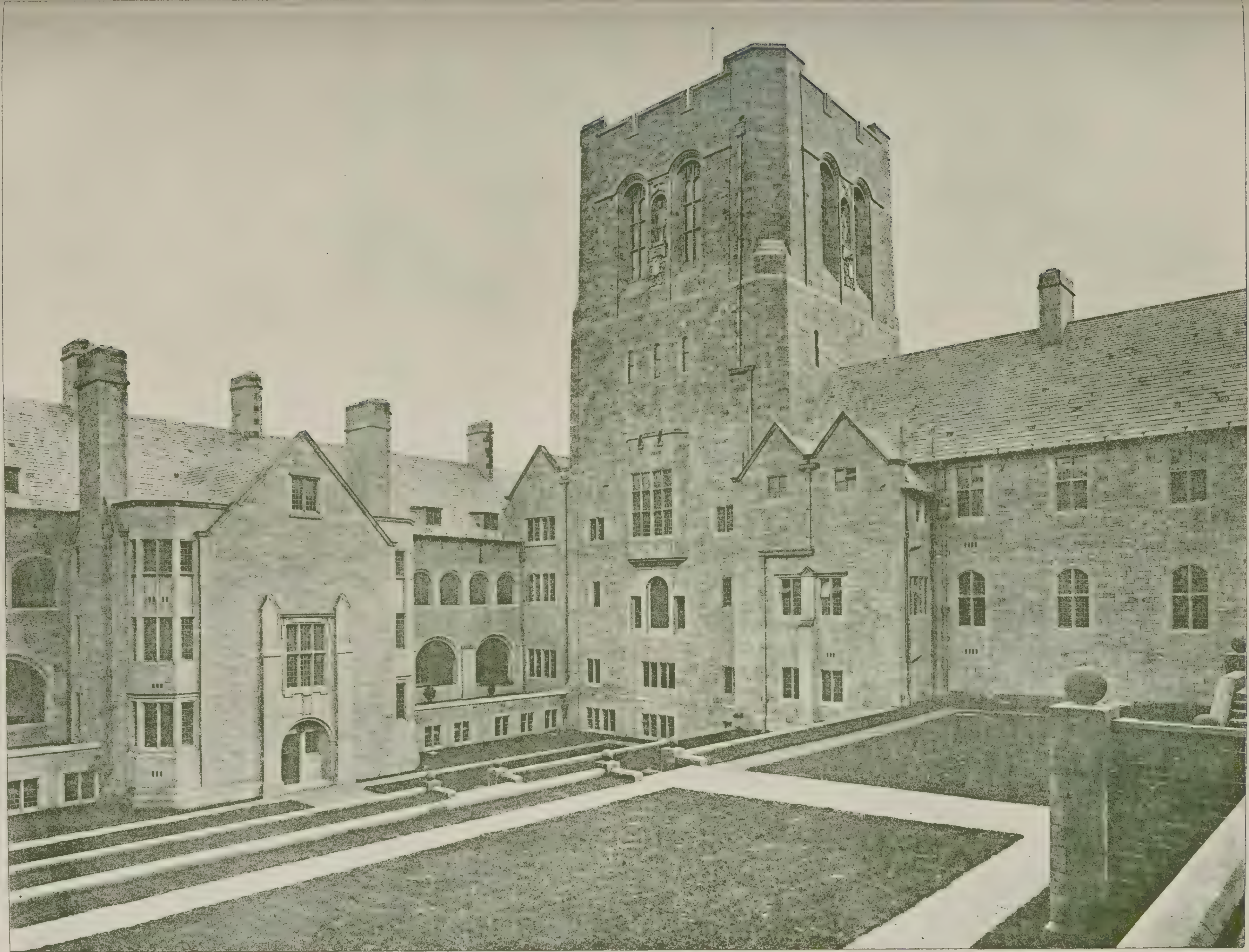


PHOTO BY A. E. WALSHAM, 60 DOUGHTY ST. W.C

"INK-PHOTO" SPRAGUE & Cº Lᵈ 4 & 5, EAST HARDING STREET. FETTER LANE. E.C.

QUADRANGLE AND TOWER.

THE UNIVERSITY COLLEGE OF NORTH WALES. BANGOR.

Mr. HENRY T. HARE, F.R.I.B.A., Architect.

UNIVERSITY OF ILLINOIS

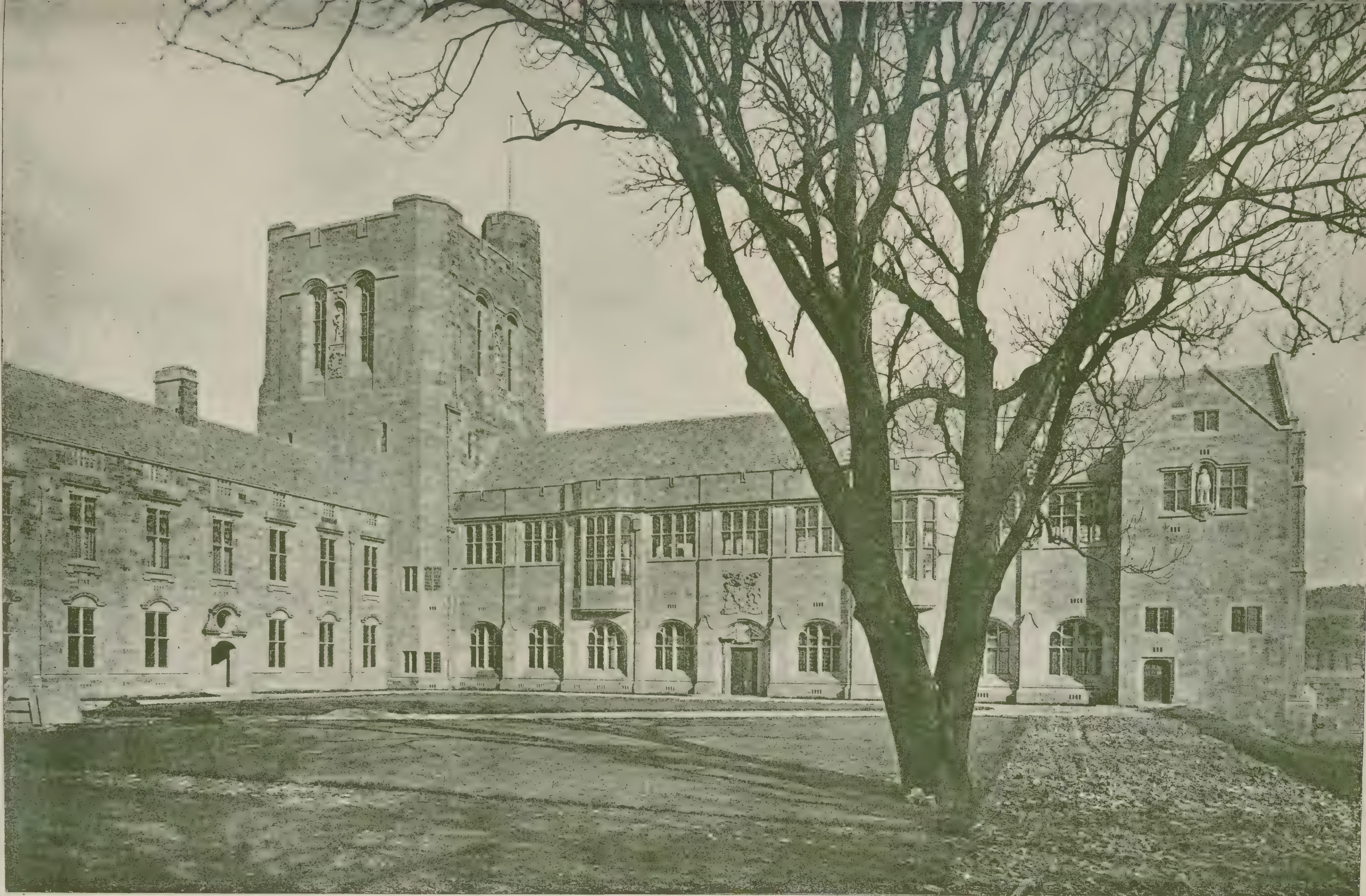


PHOTO BY A. E. WALSHAM, 60 DOUGHTY ST., W.C.

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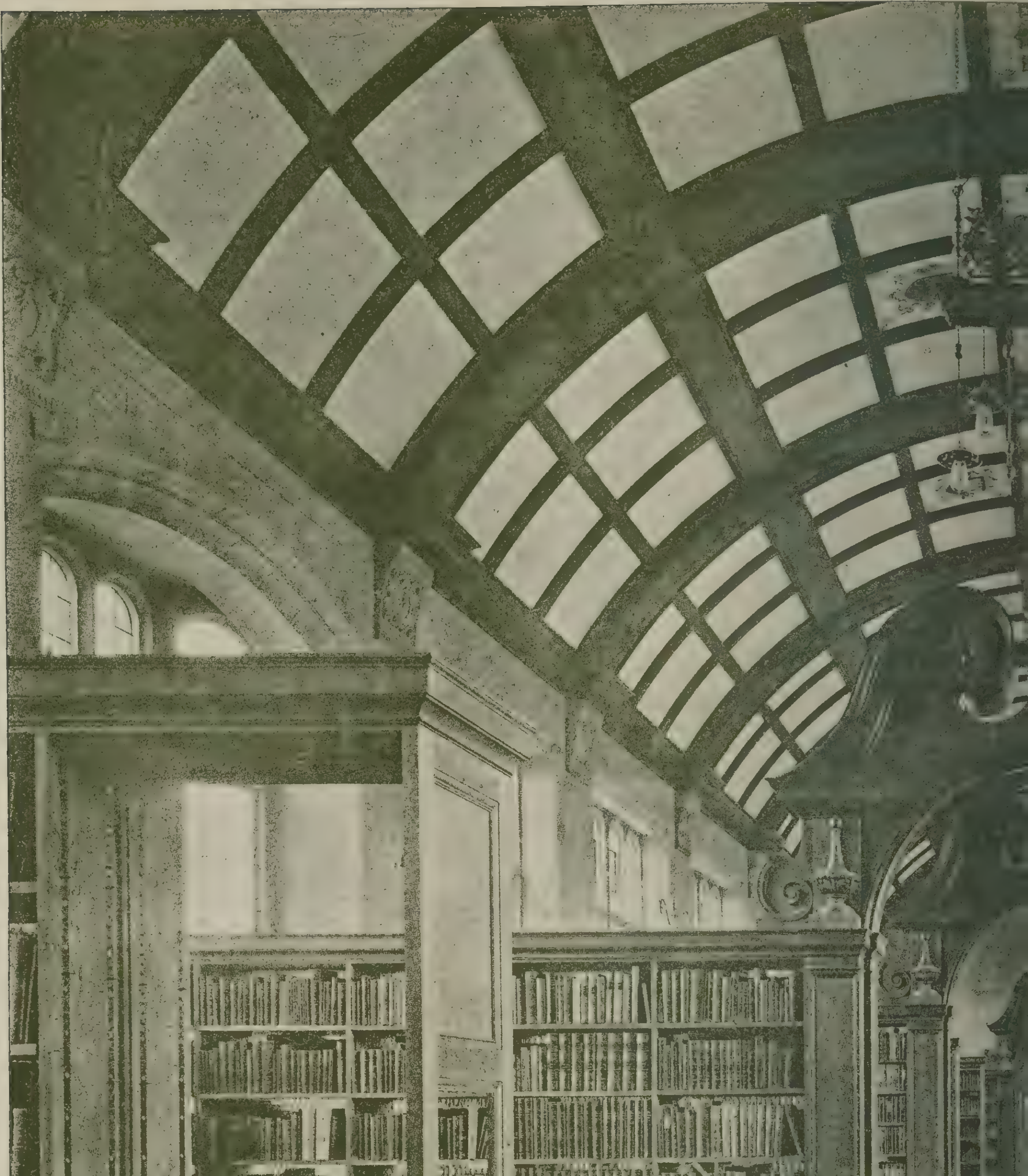
OUTER QUADRANGLE.

THE UNIVERSITY COLLEGE OF NORTH WALES, BANGOR.

Mr. HENRY T. HARE, F.R.I.B.A., Architect.

UNIVERSITY [illegible]



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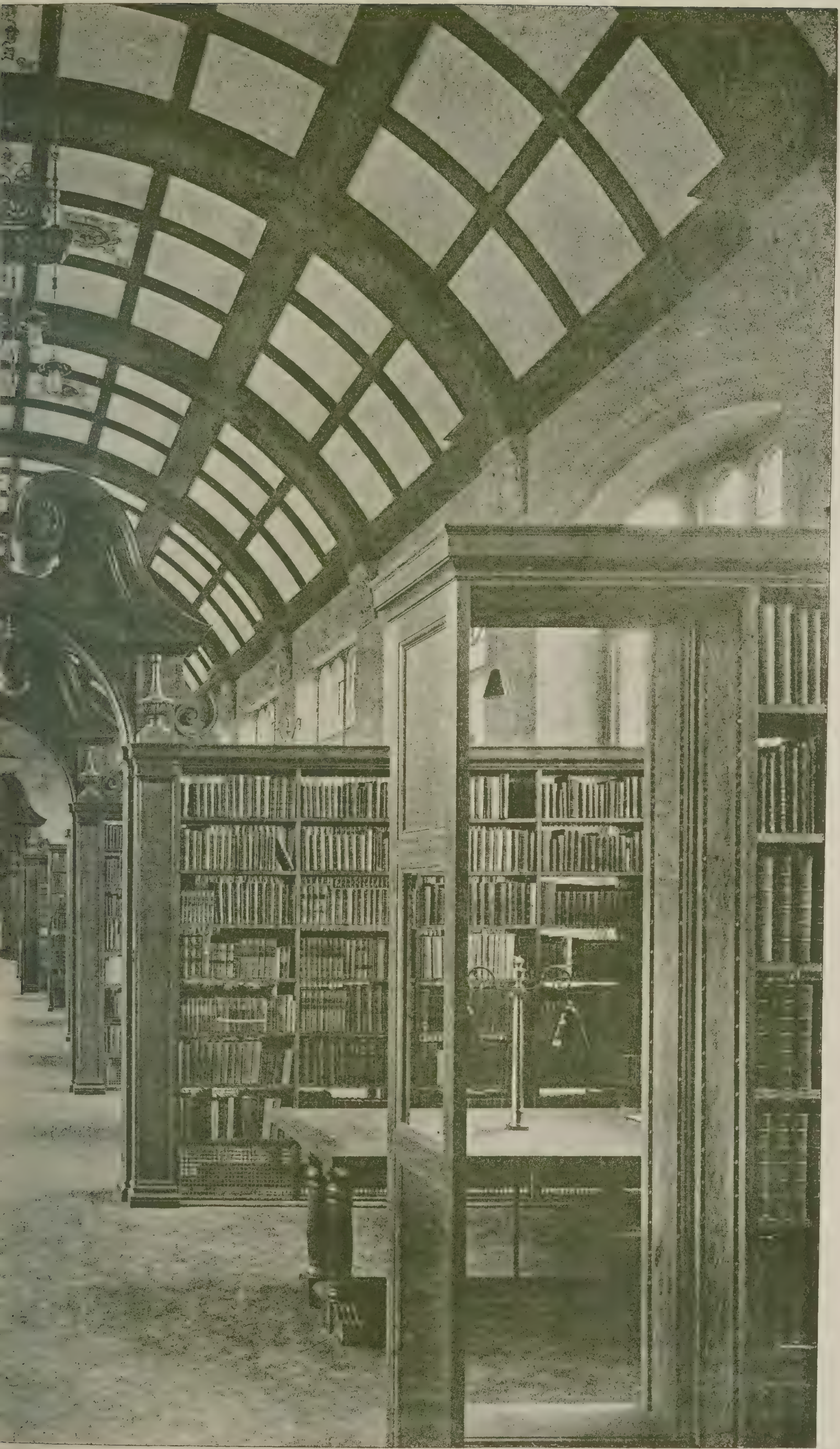

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LIBRARY.

NORTH WALES, BANGOR.

R.I.B.A., Architect.

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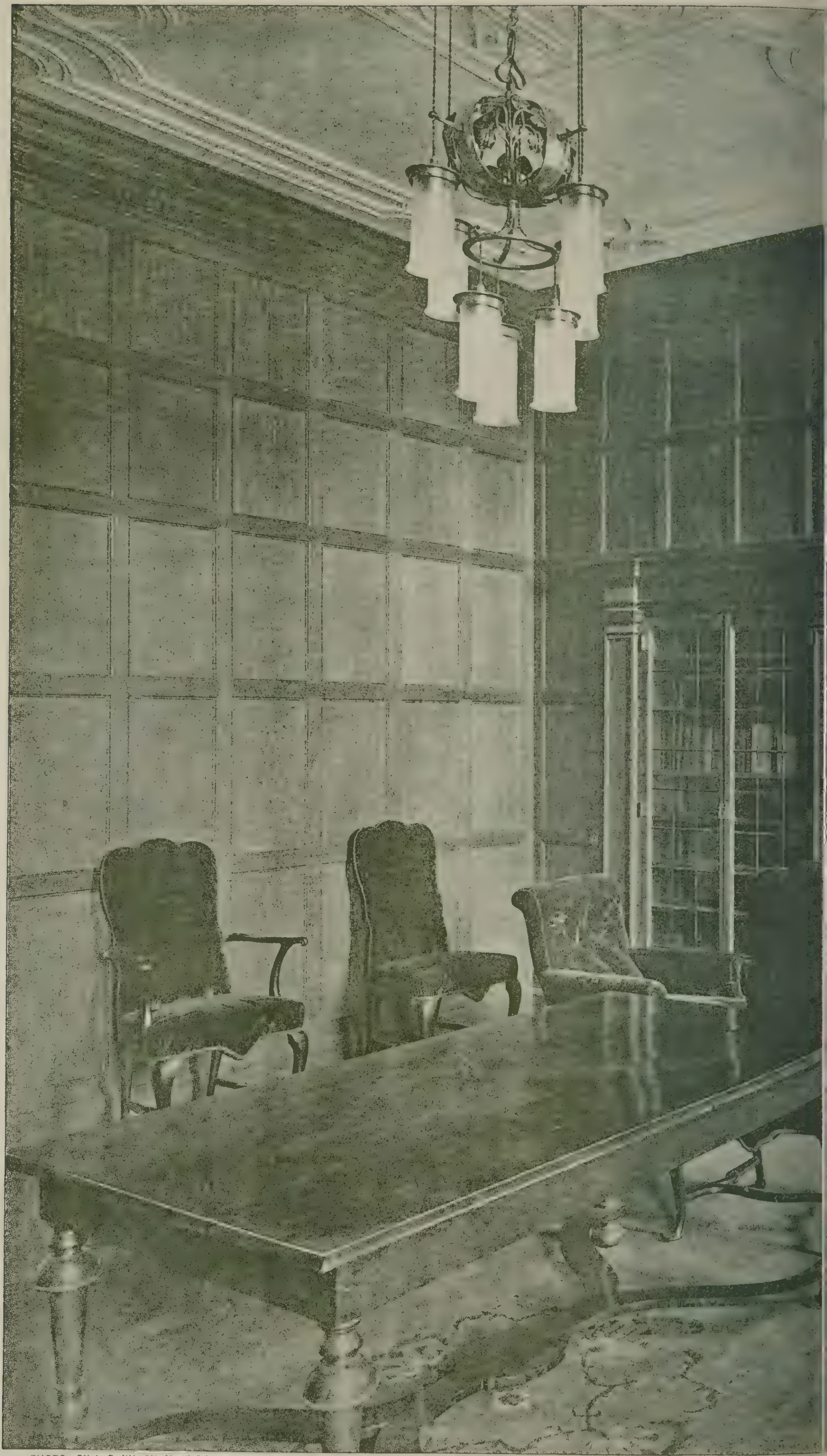

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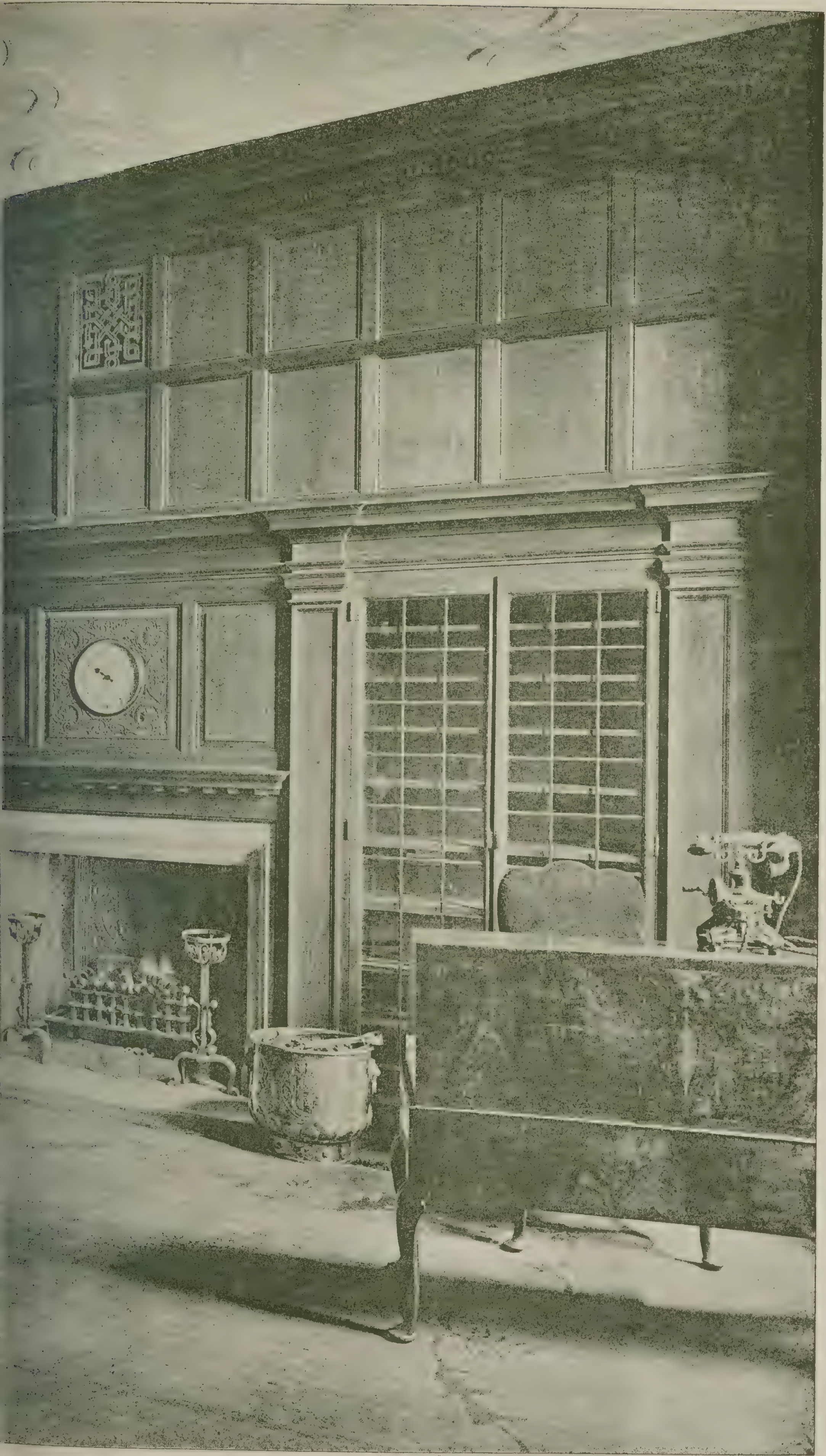
THE UNIVERSITY COLLE

Mr. HENRY T.



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ORTH WALES, BANGOR.

I.B.A., Architect.

UNIVERSITY OF ILLINOIS

The Architect.

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FORTHCOMING EVENTS.

Saturday, August 5.

Architectural Association : Excursion of Camera, Sketch and Debate Club to Bishop Stortford and district (August 5-7).

Monday, August 7.

Royal Society of Antiquaries of Ireland : Ulster meeting opens at Belfast (closes August 12).

Northern Architectural Association : Students' Sketching Club Annual Excursion.

Tuesday, August 8.

Guild of Architects' Assistants : Visit to London Opera House, Kingsway (Mr. Bertie Crewe, architect).

Friday, August 11.

Architectural Association : Forty-second Annual Excursion to Tours and Loire Valley (August 11-20).

Tuesday, August 15.

Manchester Society of Architects : Visit to Messrs. Edward Wood & Co.'s Ironworks, Ordsall Hall.

Saturday, August 19.

Manchester Society of Architects : Visit to Chester Cathedral and Eccleston church (the late G. F. Bodley, architect).

STUDENTS' WORK AT SOUTH KENSINGTON.

THE annual exhibitions at South Kensington of works by art students throughout the country comprise work submitted by pupils of metropolitan and provincial schools of art in the national competition for prizes and specimens of the work done during the past session by pupils of the Royal College of Art.

The latter may be supposed, at any rate in London, as containing the *crème de la crème* of art students, as it is especially intended for those alone who intend to practise as professional artists or as teachers of art, whilst the general schools of art are open to the amateur and dilettante who not only are apt in themselves to be slack and easy-going in their methods of study, but are often the cause of slackness in others to whom art is, or should be, a matter of deeper concern as their prospective means of livelihood.

At the Royal College of Art architecture is fully recognised as "the mistress art," and all students, whatever their ultimate goal, must devote the first portion of their time to the study of architecture and architectural design. This has a twofold effect. The sculptor and the painter find their work influenced by a tendency to restrict its scope as an adjunct to architecture. The architect regards his building as a field for the display of painting and sculpture. Thus the Royal College of Art is a school in which by art is understood the alliance of architecture, painting and sculpture, and including as subservient branches all other decorative arts and crafts. In other words, art as applied to buildings is the dominant subject of study in the Royal College of Art.

In the works submitted for prizes in the National Competition of Schools of Art, one seems to see quite a directly opposite point of view. There architecture is, when not entirely ignored, unappreciated and misunderstood. Even the express teaching of architectural design is, as judged by the results produced, of a very low order. There would seem to be prevalent an idea that the domain of art can be complete without architecture.

The evil conception of art that the British public imbibes from the annual exhibitions of the Royal Academy that oil painting on canvas in gold frames is the only real work of art is capable of refutation by a well-organised and well-boomed annual exhibition of prize work in the National Competition of the Schools of Art, but this collection will not do what it might as long as it is buried away in a stuffy shed in the backyard of science museums and schools. To render the education of the Philistine complete, architecture must be presented in a more correct aspect than in the National Competition, hence we need the tonic of the Royal College of Art.

We think strongly that the Board of Education should feel it to be their duty to educate the Philistine in an appreciation and comprehension of art. It is a duty they owe to the many students who are spending time and money in schools of art. There have been submitted in the National Competition this year 13,153 works, of which 1,924 are considered by the judges worthy of reward. What is the use of all this effort and hard work if there is to be no market for good and genuine artistic work? Why train students unless you can ensure that the results of their study will be intelligently appreciated?

In the Royal College of Art exhibition the work of the lower division of the School of Architecture is represented by a set of drawings made by one student, F. S. Smith, showing that studies are first made of old work and then a design based upon these. The school is fortunate in having in Mr. Smith a student who can draw and whose designs are of considerable merit, hence a very favourable show is made by a representative whose level of achievement is, we imagine, rather above the average.

In the upper division there are the first year's course and the advanced course, the latter being intended for students specialising as architects. The subject of study in the first year's course was the design and decoration in colour of a domed memorial church, and twenty-two sets of drawings are exhibited. In these the colour decoration is, as a general rule, far better than the architectural design. There is scarcely an instance in which a successful dome has been evolved, and although several have made studies of the church of the Madonna di San Biagio, Montepulciano, the authors usually commit the fault that is there avoided and make the drum of the dome too high. The design of the dome seems to have been spoilt by a desire to get the maximum of space for the colour decoration.

In the advanced course work we were rather surprised to see two designs submitted in the competition for the Tite prize this year, that of Mr. G. H. Foggitt, who won the prize, and that of Mr. W. G. Newton, whose drawings deservedly attracted much attention. Designs at the Royal College of Art are, presumably, made under the direction and with the advice of instructors, and the Council of the Royal Institute of British Architects will have to consider, in view of what happened in the case of the Soane Medallion and this latest revelation, whether further rules and regulations should not be incorporated in the conditions for the annual competition. It is obviously unfair that some competitors should prepare their designs under skilful supervision and others in the seclusion of their own bedrooms. If assistance is permissible, both that of the "patron" and the "nigre" must be allowed. Then we shall probably have the establishment of the "atelier" where both can be obtained. We are not prepared to say that this is inadvisable, but if permitted it should be openly recognised, even though it be a departure from the unwritten but well understood law governing the student competitions of the Royal Institute in the past.

Mr. Newton's design for the decorated memorial chapel shows more originality than many. Possibly the theme he has selected, a memorial to the pioneers of flying, has inspired him with the desire to break away from the traditions of the past.

Whilst Mr. Foggitt and Mr. Newton were busy on their Tite designs others of their fellow students appear to have been engaged in designing a façade for a palace. Mr. S. Clough has for his design studied Greek motifs as exemplified in the Euston Road. Mr. S. Small has a design which includes some good if more conventional detail, but is spoilt by a dome à la Wilkins. On the whole we consider that the work of the School of Architecture shows a distinct advance on that of past years and stamps the Royal College of Art as an admirable "finishing school" for the architect student who has passed the ABC stage of his study. It is not advisable for the tyro who has yet to learn how to use pencil and brush with ability and facility.

In the School of Sculpture and Modelling there is some really excellent work and a satisfactory combination of architecture and sculpture, particularly in the sketches for a fountain in commemoration of the reign of King Edward VII., to be placed in front of a pavilion. The sketches in the round are supplemented by photographs of the same design carried out to a larger scale. That of Mr. W. McMillan, who wins the travelling studentship of the school, is a fine piece of design, with a statue of the King on a lofty pedestal in the centre of flanking screen walls with sculptured panels and life-size emblematical figures at the ends; but there are several other beautiful designs, generally more allegorical in treatment. Some of the sketches for a pair of bronze doors for a palace of art and music are also admirable. Of these we prefer that of Mr. E. G. Pritchard, which is superior in its composition and proportioning of the panels.

In the remaining work of the Royal College of Art the School of Painting and Mural Decoration is dominated by its subservience of painting to mural decoration. Perhaps the best of the sketches are those for the historical subjects: Margaret of Anjou entering the city, by Mr. L. Preston and Miss E. A. Waite; Titus Oates in the pillory, by Mr. H. B. Wright; and the Burning of Newgate by the Gordon Rioters, by Mr. R. Gill. Mr. J. D. Revel has a good design for decoration on a ceiling, the subject being "Inspiration with Caprice and Fancy." The same artist's sketches for the historical pictures show much ability of composition and a good feeling for colour.

Museum studies rather than original designs are the most satisfactory work in the School of Ornament and Design, though there are some good designs for stained glass by Mr. W. P. Huggill. In the designs for room decoration those of Mr. A. B. Allen for a stone fireplace and a tomb show an intelligent study of the work of Alfred Stevens; but some others, as those of Mr. H. Brown for the decoration of a dome, of the apse of a church, and of the east end of a church, as well as Mr. J. F. Greenwood's design for the latter subject, show that their compulsory study of architecture has been insufficient, and for the credit of the school their drawings ought scarcely to have been exhibited.

In the National Competition one of the gold medals has been awarded to a modelled and carved design for a fireplace, by Mr. William H. Wright, of the Nottingham School of Art. This is a combination of architecture and sculpture, which until we referred to the catalogue we thought to be a design for a monumental doorway. In the architecture Greek Ionic columns of correct proportion and detail are surmounted by an entablature minus the frieze; the sculpture is an excellent bas-relief panel executed in marble. Two of the gold medals are won by jewellery, Mr. Thomas Cuthbertson, of the Margaret Street School of Art, Birmingham, and Mr. Edward Joseph, of the Camden School of Art, Islington, being the winners. Both of the designs are of high excellence, the former in gold and the latter in silver, and both for necklaces.

A very interesting set of studies of the historic treatment of heraldry as exemplified in English seals and fictile examples from A.D. 1100 to 1700 in Warrington Museum wins for Mr. Sydney W. Clatworthy a gold medal. Other gold medals are won by Miss Christine Gregory, of the Hammersmith School of Arts and Crafts, for a modelled torso from life; by Mr. Albert G. Power, of the Dublin Metropolitan School of Art, for a model of a figure from the nude; by Mr. Harry Clarke, of the same school, for stained-glass design, which the judges, rightly in our opinion, characterise as "a very remarkable effort in the highest class of art, full of vigour and character, earnest feeling, richness of conception and great resource in design and detail." The remaining gold medals are granted to a charming design for an enamelled silver potpourri jar, set with amethysts, by Miss Jean Campbell, of the Camden School of Art, Islington; a shaded drawing of a figure from the nude, by Mr. Horace Quick, of the Clapham School of Art; and a design for a woven tapestry hanging, by Mr. Robert B. McCoy, of the Macclesfield School of Art. This last is excellent in composition and colour, with a refreshing variety of motif that gives interest to a design which by its nature entails repetition of a given pattern.

Besides the gold medal winners there are other noteworthy competitors in the class of modelling design with architectural features, but the general failing throughout is that the architectural treatment is not entirely satisfactory. Silver medals have been won by Alexander Stiles, of the Westminster Technical Institute School of Arts, for an excellent design for a tomb; by Louis C. Collier, of the Nottingham School of Art, for a lamp standard, which must have succeeded by its general conception, as the judges point out that it is "weak in outline and in the profile of the mouldings, and faulty in scale." A third silver medal is obtained by William D. McNeill, of the Liverpool School of Art, for a figure forming part of the tympanum of a pediment, although this is defective in its architectural treatment.

In the architectural designs Mr. Bertram Lisle wins a bronze medal for his Soane Medallion design for an entrance gateway and bridge to a capital city; Mr. Bernard Dangerfield for his design of a Campo Santo; and Mr. William A. Ross for a design for a public place situate upon the bank of a river. Mr. Ross gets a bronze medal also for a measured drawing of the portal of Bordeaux Cathedral from a cast in the Victoria and Albert Museum. Thus in the architectural section of the National Competition we find further illustration of our remarks above on the Institute annual competitions for prize designs.

There are in the exhibition some very good examples of modelled architectural detail and drawings in monochrome from the cast of similar subjects.

NOTES AND COMMENTS.

At the twenty-third annual meeting of the National Society of Art Masters held last week, Mr. R. G. Hatton, of Newcastle-on-Tyne, who presided, was, we think, a little too optimistic when he said that we have no need now to plead the cause of art, but that our great trouble is to keep up with the quick pace with which the understanding of it is moving. We doubt whether the time has yet arrived when there is any general understanding of art. There may be an increased appreciation or, at least, recognition of art as something that is worthy of consideration, but this does not amount to comprehension.

Therefore we are in accord with Mr. Hatton when, in summarising the creed of the Society, he said that they claimed that the people had a right to sound education in art, apart altogether from questions of trade or vocation. They claimed that all persons should have the opportunity of studying during their youth and early manhood any subject which they cared to study. They believed that their value as citizens greatly depended upon that study, and that the success of our country in art depended very greatly upon the proper provision of opportunities for the practice of it during those ten or twelve years of serious and enthusiastic activity which succeeded to one's schooldays. They claimed that a city or a county had not adequately provided educational opportunities unless it had established a sufficient number of schools of art reasonably accessible to the public.

Whilst on the Continent and in America the building of costly and beautiful railway stations is so general that it must be taken to be a desirable investment of capital, our own railway companies seem to be bent on adding a trifle to their income by scattering little trading kiosks for the sale of all manner of articles, thus belittling whatever dignity their stations may possess. The London, Chatham and Dover Railway Company propose to go a step further and erect shops with three floors over on a portion of the forecourt of Ludgate Hill station. True, this particular station is not a thing of beauty, and its eclipse need not on that score be regretted, but the proposal if carried out will considerably increase the overcrowding of the day population in the City's square mile.

The rebuilding of the campanile at Venice is now practically completed, and Sansovino's loggietta has been reconstructed with the greatest care and skill from the fragments into which it was shattered by the fall of the tower.

In the *Art Journal* for this month the series of articles on "Interiors of English Mansions" is continued with further details of Holkham. These include not only some of the sculpture but excellent views of architectural design, amongst which are reproductions of Kent's original designs for the front of the house and the interior of the library. A coloured plate is given of one of a pair of English enamelled fire-dogs. "Tapestry weaving in England" reaches its second chapter with some good illustrations. The "Kent" furniture at Devonshire House is described by Mr. Francis Lenygon, accompanied by some superb illustrations. Sir Claude Phillips discusses the authorship of the fine "Portrait of a Genoese Nobleman," ascribed in the Dulwich Gallery collection to Vandyke, but which Sir Claude is inclined to credit to Rubens.

This month's number of *The Connoisseur* contains an interesting and fully illustrated article on "Some Remarkable Stoves," as exemplified in German, Swiss, and Austrian interiors, of which they form striking centres of interest. A series of articles on Albrecht Dürer woodcuts is commenced, accompanied by well-printed reproductions. The Spottiswoode collection of Rhodian ware, with numerous illustrations, is the subject of a leading article.

THE ROYAL ARCHÆOLOGICAL INSTITUTE.

(*Continued from last week.*)

Wednesday, July 26.

TUESDAY, the opening day of the Institute's summer meeting, was devoted to Cardiff as described in our issue of last week. The excursions to places in the neighbourhood began on Wednesday morning by a train journey of seven miles to Caerphilly Castle (*vide* plan in Supplement, p. 12), which is the most extensive in South Wales, and is reputed to cover with its outworks about thirty acres. It is said to be both the earliest and most complete example in Britain of a concentric castle. The castle was begun by Gilbert of Clare, Earl of Gloucester, about 1267. One of its most unusual features is the elaborate system of water defences by which the whole castle could be surrounded with a broad and deep stretch of water from the neighbouring brook, the Nant Gledyr. The presence of this water explains a good many points in the plan which otherwise would puzzle the visitor. The main entrance was through a gate in the curtain walls 250 yards long on the east side. Behind this wall on one side was a great earth embankment which acted as a retaining wall for the water; and with the object of further resisting the pressure of the water the wall was strengthened by buttresses and towers on its outer face. From the earth embankment a bridge, partly fixed and partly movable, gave access to the castle mound. Its gatehouse had a turret on each side; there was a similar gateway on the opposite side. Behind this yet another strongly fortified entrance-gate confronts the visitor before the inner ward is reached. On the south side of this enclosure was the lofty hall 73 feet by 35 feet, the cellars with the chapel above, the private apartments, a tunnel-like entrance leading to the water level, and other features. In its general lay-out the castle bears some resemblance to Berkhampstead. Mr. W. H. St. John Hope, M.A., in his account of this wonderful building, expressed his conviction that it was all according to one definite plan, although the time covered by its erection may have been fairly extensive. The material throughout is coursed ragstone, very little ashlar having been used. To most people the most attractive feature of all is the noble great hall. Here Mr. Hope pointed out many interesting details. The surface still retains the Edwardian whitewash, which, as Mr. Hope remarked, was not a modern churchwarden's vice, but a virtue of the Middle Ages. The wooden roof was supported on clustered corbel shafts. The present simple roof was erected by the Marquis of Bute, the owner, forty years ago. Looking into the inner ward are three delightfully narrow and high windows, from which the tracery is missing. The glass for these was inserted into wooden frames which were wedged into a rebate on the outer face of the jambs, while saddlebars prevented its blowing inwards. On the same side was the broad Tudor fireplace, which is a remarkably early date for that feature. The mighty ruins are sufficient to stir any imagination, and it is easy to re-people the hall with men-at-arms, guests of low and high degree, and the lord with his châtelaine at the daïs end, looking through the bow window into the broad inner ward—the scene itself of many a joust eagerly watched by gentle maidens and fierce men from the surrounding walls and open casements. It is more accurate to perhaps conjure up scenes of peace because the castle never played a prominent part in military history, although adapted to do so by the architect.

The party returned to Cardiff by rail. After lunch, a motor journey of some two miles brought them to the ancient city of Llandaff.

Llandaff Cathedral.

Although the present structure goes back to A.D. 1107, when Urban was appointed by the Normans as Bishop of the 500-years-old diocese, the connecting chain has some very weak links which only escaped breaking by a hair's breadth. Seven hundred years after Bishop Urban was dead the then prelate found himself in possession of a cathedral, which was probably of no more use than that which awaited Bishop Urban, for it is recorded that Bishop Ollivant (1849) found his cathedral almost a ruin and left it fully restored. The Dean, who acted as guide to the party, mentioned that long before Norman times Llandaff was a centre of missionary work. Tradition asserts that King Lucius erected a church here about 170. St. Dubricius was the founder of the see of Llandaff, "the church on the Taff," in the year 500. He was of royal blood, and here he put up a church and gathered round him a body of clergy for missionarising the country. It made the third educational institution in the neighbourhood. Llandaff was during some four hundred years the centre of Christianity in this part of the country. When the Normans came they found things in a great state of collapse owing to the depredations of the Danes or North European tribes. Consequently with the Normans a new era began, and they put up a building which naturally would be up to date; and with the new style a new Continental system was introduced. There was a great wish to bring about a better state of things in place of the existing dilapidation. Moreover, Bishop Urban, the first Bishop appointed by the Normans, was anxious to have something to rival the shrine of St. David in the western part of South Wales, which was becoming very popular as a place of pilgrimage. Accordingly in 1120 he translated the remains of Dubricius and built a shrine to his memory so as to give point to the new church. The curiously ornamented arch over the high altar shows part of that work. How far the church was completed it is difficult to say. It was commenced and carried out practically with the money collected under an order of the Archbishop of Canterbury from every church in England. It was sufficiently complete at the time when Baldwin came to preach the Second Crusade for him to hold services in the building and preach from the village cross. Later the Norman church was considerably altered and the nave was extended to its present length, and the ground plan practically took its present shape. Towards the middle of the thirteenth century it was found requisite to have a chapter house on the south side of the presbytery, for although a chapter had been formed there was at first no chapter house. Soon afterwards there came a Bishop, William de Braose (1266), who was anxious to be once more up-to-date, and accordingly he built beyond the chancel arch a Decorated Lady chapel such as was then becoming popular. In order to enable the customary procession to still make the complete round of the church it was necessary to extend the aisles and to effect other alterations. The north-west tower was built in the fifteenth century. In Henry VIII.'s time things were so unsettled that the church became very dilapidated. With the Restoration there came an attempt to make things a little better, but little or no money was available. At the end of the seventeenth century the choir was broken up and things fell more and more into a state of dilapidation. In consequence of all this it became a question whether the cathedral should not be transferred to Cardiff. The services, however, were still continued in the Lady chapel. In 1723 the south-west tower was destroyed by a storm, and in its fall ruined a considerable part of the nave. Some ten years later a national appeal for funds was made, as a result of which £7,000 was collected. Wood, of Bath, was engaged to fit up the presbytery for service, and he designed a sort of Italian temple of miserable appearance to be put up within the nave. About 1835 the spirit of revival reached Llandaff, and immediate steps were taken to begin improvements, which were not completed until 1869. A commencement was made with the Lady chapel. Later the ruined west end of the nave was taken in hand and the pseudo-classic temple was cleared away. The work was put into the hands of Sir Gilbert Scott. There were just sufficient remains of the preceding structure to guide the restorers, chief of whom was Mr. John Pritchard, of Llandaff. Nearly £40,000 has been spent on the building. Not far from Llandaff is

St. Fagan's Castle.

To call this a castle now is somewhat misleading, for it is nothing more than a charmingly gabled sixteenth century house standing on the site of a castle. Very little of the earth or stone work of the preceding structure remains, except a small forecourt with terraced wall. It was in Norman times held directly under Robert Fitz Hamon, Earl of Gloucester. The various apartments contain some fine oak panelling, old furniture, and other objets d'art. One of the most interesting things is the wonderful circular lead cistern in the forecourt dated 1520, with a double row of panels all of the same formal design. An invitation to tea had been extended to the party by the Right Hon. the Earl of Plymouth, and with it permission to roam over the beautiful grounds. These latter depend for their charm chiefly on the flowers rather than on architectural disposition in relation to the castle. The gardener's triumph is complete in the number of blooms, the beauty of colour and their striking contrasts of massed beds, and in the rosaries, pergolas, sunk beds, and other devices. If it were not invidious in a guest to find fault one might be tempted to protest against the numerous raw brick chimneys lately put up all over the castle roof, and for which a wire-cut brick of most unsympathetic texture has been selected. The castle walls are of stone, with a coating of stucco to counteract the porosity of the local quarries.

In the evening a paper, illustrated by lantern views, was read at the City Hall by Mr. John W. Rodger on

The Stone Cross Slabs of Glamorgan.

About 840 he said the following law was passed by Kenneth, King of Scotland: "Esteem every sepulchre or gravestone sacred and adorn it with the sign of a cross, which take care you do not so much as tread on." Of all symbols the cross is perhaps the most familiar. It is nearly always symbolic. Nothing is known of its origin further than that, in times long before the Christian era, it was known to the Babylonians and Assyrians, as well as in India, Thibet, and to the most ancient peoples of Europe. Professor Evans found in Crete a type of cross with a small base to each foot as a distinguishing mark of a small series of rooms in the Palace section at Knossos. He also records that "on some blocks, apparently belonging to the earlier Palace, a plain deep-cut cruciform sign with equal limbs and others shaped as a cross saltire are also found, and these types occur at Phaestos." These dated from nearly 2,000 years before Christ. In 1903 an actual cross of fine veined marble and of orthodox Greek shape was discovered at Knossos. From its position and associations it was a possible conclusion that it formed the centre feature on a small shrine dating back to 1650 B.C.

No originality can be claimed for the cross when used as a sign in Christian times, for it may be said to have had its origin in one of the earlier symbols which expressed the name of Christ by means of a monogram formed of the Chi and the Rho—the first two letters of the Greek word ΧΡΙΣΤΟΣ and known as the Chi-Rho and also as the sacred monogram. This monogram is supposed to have been the celestial sign seen by the Emperor Constantine on the eve of a battle in which he overthrew Maxentius. It was afterwards placed by him upon the imperial standard and was stamped upon the imperial coins till the fifth century. Although used by Constantine the monogram was not his invention, but an adaptation with a special significance. It had appeared in other forms at different times. One form is used as an abbreviation upon coins of Herod I., B.C. 37 to B.C. 4; another was used on Phrygian and Lydian coins of the time of the early Roman Emperors. Before A.D. 312 the Chi-Rho was in frequent use as an abbreviation of the name of Christ, but its use as an actual symbol of our Lord on Christian monuments is not proved until about A.D. 323, and from that time forward was universally recognised as signifying the name of the Saviour. It was used wherever such a mark could be placed and still bear a sacred significance. The development of the Christian use of the simple cross from the monogram has been worked out by the late Mr. J. Romilly Allen from examples found in these islands. The loop on the Rho gradually faded until nothing but a plain cross of Maltese form was left. The cross and the monogram ran concurrently for about 200 years from the fifth to the seventh centuries. This proved connection established the great central fact that the cross in its original conception stands simply as something expressive of the whole being and character of our Lord.

Probably the earliest dated example of a true cross as a Christian symbol is at St. Peter's, Rome, A.D. 395. It did not become common until the fifth century, and in Britain it usually belongs to Anglo-Saxon or later times. In some excavations in the Roman fortress at Gellygaer a large flat brick was discovered on which had been scratched a cross in a circle while the brick was still plastic. It probably dates from the second century. But this was presumably merely a whim on the part of the worker or an identification mark rather than a Christian symbol any more than are some other early crosses found in this country.

With regard to the earlier incised cross slab of South Wales very little can be said. The workmanship is rude, the stones frequently unshaped, and the crosses themselves very much exaggerated. It is very difficult to date individual stones with any degree of certainty, as they have no connections that can be traced in history; but as a group they may be contemporary with the Celtic knot-work designs—say from the seventh to the tenth centuries. About the middle of the twelfth century heraldry became a science in this country, and from that period onwards it is not unusual to find heraldic crosses carved on tombstones. The Latin cross, the Greek cross, and the Maltese cross were all known to heraldry and are of common occurrence upon tombstones. The altar cross is another form, probably the most familiar to the working stone-cutter of that time, and it is interesting to see how the feeling and features of crosses in latten or brass were copied into stone. It is not known when the cross was first placed on the altar, but in a document of 1246 an altar cross is mentioned. It is, however, most probable that it existed in that position long before its recorded time. Another favourite form is that of the processional cross, which was carried in the hand and had no base. These are represented as lying on the stone and usually terminate in a fleur-de-lys.

In the eleventh, twelfth, and thirteenth centuries slabs are rarely inscribed; or where such is the case it takes the form of a brief statement such as the "Hic Jacet Rudolphus" at Chester. Instead of long inscriptions relating to the deceased the stones were marked with designs beautiful in their conception and reverent in their symbolic meaning. In the Vale of Glamorgan many of the slabs from the twelfth to the fifteenth centuries are flat domes, from one of the thinner beds of the blue lias formation, selected with a fairly smooth face, but otherwise entirely unprepared, and on this the design is traced by a process of freehand and cut with an incised line having little regard for regularity.

There is a class of stones of distinct fifteenth century type. The influences which affected architecture during the mediæval period and brought about the changes in styles, altering the deeply-cut mouldings and pointed arches of the thirteenth century to the flat examples of the fifteenth, can also be observed on the cross slabs. The fleur-de-lys with its bold rounds and hollows gave way to a flatter treatment, partaking largely of a fifteenth century moulding when seen in section.

In 1643 an order was promulgated for the destruction of

"Crucifixes, crosses and all images of any one or more persons of the Trinity." Cross slabs must have existed in large numbers prior to the seventeenth century, and those which remain are what escaped destruction during those troubled times. In dealing with the fabric of an old church it is no uncommon thing to find cross slabs used as building-stones on account of their suitability either for footing courses, lintels or doorsteps; many have been found buried in the soil under church floors, or turned upside down and used as paving-stones. This legislation no doubt bore hard upon some consciences, and it is not surprising to find that stones cast away at one period were rescued and recut with other names later. There are many examples of this treatment in South Wales. From the time of Elizabeth to that of Anne, in place of the delicate and refined features of the earlier crosses we have a heavy expressionless type, devoid alike of artistic feeling and sentiment and prepared as it were to hold its own by sheer force and weight. However, the symbolic idea had not disappeared.

A distinct class of cross is that consisting of a central cross with two smaller crosses branching from its stem. These have been referred to as "Calvaries." As in a Continental Calvary the central cross has figures of St. Mary and St. John on either side, with three crosses, the slabs may have been a survival of the same idea. Triple-branching crosses appear to be peculiar to this neighbourhood. In some cases instead of two branching crosses there are two bars or billets. Having in mind the Continental Calvary with a central cross and an isolated figure on each side and the triple crosses of Glamorgan it is not difficult to imagine the process of evolution by which the billet slabs would come to represent the same idea.

Crosses may be grouped in order either of date, of similar features, or by some symbol or emblem associated with the cross.

Thursday, July 27.

The distance to St. Donat's from Cardiff being a considerable one, the first part of the journey was made by training to Llantwit Major, and then continuing in motors to

St. Donat's.

Although St. Donat's Castle (*vide* plan in Supplement, p. 12) is not a showplace it has been truthfully described as "unquestionably one of the most perfect of the ancient baronial halls of Wales." It was obviously regarded by all as one of the most fascinating places. Its charm was probably in some degree due to the pervading sense of homeliness, as distinct from a residential museum. It occupies a most romantic site, commanding the Bristol Channel. The earliest part of the building dates from the fourteenth century. The range of buildings is remarkably compact, and is within a practically circular wall. At the time of Elizabeth considerable alterations were carried out, although the general external aspect was allowed to remain unchanged. The earliest reference to the castle is found in the twelfth century, when this and St. Norcross were held by a family by virtue of their office as cup-bearers to the Earls of Gloucester—the family assumed the name of Butler. Then, either by marriage or by change of name, it came into the possession of Hawey, alias De Alweia. The last Haweys were people of property in Somerset and Dorsetshire. The family became extinct in the male line, and an heiress of the Haweys married a man of the name of Stradling, or Guillaume le Esterling. This family were merchants of high standing who dealt principally with the northern countries of Europe, and whose guarantee of purity gave rise to the word "sterling." The Stradlings made St. Donat's their headquarters. By subsequent fortunate marriages, as well as through holding many lucrative offices under the Crown, they greatly increased their estates. Sir Edward Stradling, whose monument is to be seen in the private chapel in the adjacent church, was a great patron of arts and letters. As he had no family of his own, or nephews or nieces to inherit the property, he selected a cousin's son as his heir and adopted him. This was the Sir James Stradling who was created a baronet in the first batch by James I. During the Civil Wars the family took an active part in the interests of the King, and greatly impoverished themselves thereby. Towards the end of the seventeenth century they were very considerably reduced in means. The last baronet died abroad in 1738. After his death there was considerable litigation, the property being claimed under various wills and settlements by several parties. The estate was thrown into chancery, but as the result of a compromise St. Donat's Castle fell to the lot of Lord Mansell, who only partially used it and by whom the structure was neglected. A recent purchaser, Dr. Nicholl Carne, made most commendable efforts to repair the damage done, and his good work was continued and completed by the father of the present owner, Mr. Morgan Williams. In his description of the building Mr. St. John Hope was emphatic in his praises of what had been done in the course of this most judicious of restorations. The aspect of everything was preserved as far as possible. The mouldings on the walls, &c., were left as they were found; and, in fact, only the necessary repairs were carried out. He also put into the rooms many valuable pieces of old furniture (all of which are genuine), and one of the best private collections of armour in the country. The hall is arranged on the customary plan, with screen at one end with gallery overhead, and a daïs flanked by an oriel window at the other. Below the castle and close to the sea is an extensive range of barracks in ruins. Mr. Hope mentioned he had been at pains to discover something about them, and he finally found that a Sir William Stradling held an important trust at the time of some threatened invasion of the coast. These buildings are, presumably, the range of barracks for accommodating the soldiers and others who were to hold the Bristol Channel.

Not the least charming feature of this castle is the hanging gardens which descend in great broad terraces to the sea-level, the lowest terrace being the enclosure for the soldiers' exercising ground.

The small church (*vide* plan in Supplement, p. 13) is placed on a steep slope west of the castle, from which it is reached by a flight of steps. Rev. L. E. Richardson, in giving an account of the church, mentioned that as St. Donatus was the patron saint of shipwrecked mariners, was it not probable that his name was brought to the place by the Sir William Stradling when he came as a new owner to the place in the thirteenth century, as the coast was a very dangerous one for shipping? The church is of twelfth century foundation. The greater portion of the existing edifice was put up by a Stradling. An especially interesting feature is the astonishingly preserved churchyard cross which has never been touched-up. Mr. Richardson said he had been told by a visitor that the cross had been spared in the era of general destruction because the then Lady Stradling, who was very charming, asked Cromwell that it should be spared for her sake. He gave the story for what it was worth. Another feature is the stone altar with its five incised crosses. and the consecration in the centre. Over it is a small metal processional cross dating from about 1470 which has been much restored on the lines of a similar cross. The Stradling Chapel, on the north side of the chancel, has an imposing altar tomb. The last of the line, Sir Thomas, was killed in a romantic duel at Montpelier. When his body was brought to St. Donat's to be buried it is said that his old nurse protested that it could not be Sir Thomas as it lacked the marks with which she was familiar. The church was restored very completely a few years ago.

The conveyances then returned to Llantwit Major, where the party took luncheon at the Town Hall. This, a rather picturesque fifteenth-century building, is reached by a flight of external stone steps. In the bell-cot is a mediæval bell bearing an inscription.

Llantwit Major.

Llantwit Major's chief claim to interest, said the Rev. H. Morris, rests probably in the honoured name it bears in the annals of early Christianity in Britain. Of its antiquity as a Christian centre there can be no doubt. It is said that St. Illtyd founded a monastery here in the year 508 and made it a place for instruction in general learning, as well as in religion. It was, in fact, a university; no less than 2,400 students, occupying 400 houses and seven halls, were resident at the same time. This university or school became a centre of religious life from which missionaries went forth to labour among the heathen or half-Christian peoples of Britain and Gaul. Many of these are still reverenced in Brittany. But it was also famous for the bishops and scholars it produced. St. David (the patron saint of Wales), St. Patrick (the patron saint of Ireland), St. Teilo (the second Bishop of Llandaff) were, it is said, among its students.

No traces of the first monastery exist, though the famous crosses collected in the western church (curious monuments of that early period) witness to the world of its antiquity and importance. Outside and around the church are other interesting remains, including a Roman villa to the north-east, a bold fragment of a mediæval gatehouse to the west, and a thirteenth-century pigeon-house with domical vault. On the south side of the churchyard is a two-storeyed house supposed to have been the residence of the chantry priests.

The church (*vide* plan in Supplement, p. 13) consists first of a chancel, a nave, north and south aisles, and a tower inserted in the west end; next of a western church with a south porch and parvise; and further west still is a third building in a ruinous condition which, when perfect, consisted of a crypt and a chapel on the first floor. To this building is attached on the north side a sacristan's house. The inner door of the south porch to the western church and the lower tiers of the masonry of this part are considered by Messrs. Holliday & Rogers, the restoration architects, to be part of the Norman church built early in the twelfth century. The piers of the porch are transitional Norman. It would seem, therefore, that the western church, known locally as the "old church," was originally the nave of a cruciform Norman structure which had also transepts and chancel. To this nave was added late in the twelfth century a central tower. In the following century changes were made, for the south porch was built with a parvise. In other respects the Norman nave remained intact, and was used as a parochial church. The tower also remained untouched. But the Norman transepts and chancel were removed to make room for an Early English conventual church with an engaged tower, arcades, and north and south aisles forming an extension of the transept eastward. Then a new chancel was built, with four lancet windows on the north side and an arcade and narrow aisle on the south. At the same time a chapel and crypt were added to the west end of the "old church." In the fifteenth century this western, or "old church," was taken down and rebuilt, leaving the Norman south door and portions of the lower Norman masonry in position, and it was re-roofed with the present oak roof. A door was inserted instead of a window in the south aisle of the eastern church, the south aisle of the chancel was removed, and the arcade built up with stonework, two windows and a priests' door being inserted between the piers. The east window of this chancel aisle was inserted at the east end of the south aisle of the nave, and a sacristan's house was added to the western or Lady chapel on its north side. A few additions were made when the church was repaired in 1905. Flying arches were inserted in the south aisle to support the arcade, and buttresses built on the west side of the tower in 1732 were partly removed.

There is, then, at present (summed up Mr. Morris) an Early English church with Perpendicular insertions, a Transitional tower, a Perpendicular western church with Early English porch, and an Early English chapel in ruins, with a fifteenth-century sacristan's house attached to it on the north side. The reredos is of stone of late fourteenth century date. In the south aisle of the eastern church is a niche with a Jesse tree. The roof of the western church has bosses carved with the arms of the Bassetts, Berkrolles, &c.

Mr. Iltyd Nicholl, in supplementing Mr. Morris's account, pointed out that, practically speaking, the clerestory windows are now of exactly the same appearance as before they were interfered with and blocked up. An altogether recent alteration was the large springing arches inserted in the south aisle of the eastern church for the purpose of propping up the walls, which still lean at an alarming angle. The floor of the nave was also slightly lowered, thereby removing its different level, and as a result of which the two squints are too high for use. The restoration of the fine stone reredos behind the altar was a simple affair, as it was only necessary to replace a few of the castellations on the top. In the eastern church there are remains of frescoes, including a great figure of, possibly, St. Christopher, of the two Marys, and a large royal coat-of-arms.

Mr. Harold Breakspear, F.S.A., pointed out that this church contained two features frequently met with in this part of the country—viz. freestone was sparingly used, and, in consequence, arches had to be of the full thickness of the walls; and also that the belfry windows were mere slits. The Raglan Chapel had galleries at both ends, that at the east end being for the exhibition of the relics, and that at the west, with its separate ascending and descending staircases, for the accommodation of pilgrims who came to view the relics.

Old Beaupré.

Standing about half a mile from a road and approached over fields is the most interesting ruined manor-house of Old Beaupré, which, for architect and archæologist alike, is of great attraction, if for no other reason than for its beautiful Renaissance entrance gateway. The party were met by Mr. D. Alexander, who suggestively entitled his account of the structure "The Romantic Story of Beaupré." The name, he said, is linked in the annals of Wales with Basset, for the Bassets of Beaupré figured largely in the history of Glamorgan. The first of the family to enter Glamorgan was John Basset, the younger son of one of William the Conqueror's generals. He came as an esquire of the body to Robert Fitzhamon, and acted as his deputy. His great-grandson, Sir Philip, was the first to settle at Beaupré. Hoary tradition says he married the heiress of the Litsillys of Beaupré, a family better known as the Cecils of Burleigh. In course of years the Bassets of Beaupré intermarried with their neighbours, and, like other Norman families, by adding Welsh blood became Welsh in spirit and sentiment, as they were also Welsh in tongue.

Mention has already been made of the inner porch, built in the days of Queen Elizabeth. This is commonly attributed to the first great Welsh artist of the Renaissance, Gwilym Twrch, of Sutton, near Bridgend. Mr. Alexander, in speaking of that artist, said it was to "Old Iolo" all the scanty knowledge of him is due. Gwilym Twrch and his brother Richard were young country stonemasons who had a quarry at Sutton, and found employment in repairing the churches after the ravages of the Reformation. The two men both fell in love with a Coity maid named Gladys. Gwilym was rejected, and so, according to the account, with his tools on his back he quitted Glamorgan to see the world. In his wanderings he reached Rome. After years spent in the Eternal City Gwilym longed once more for his home. He came back with honour and was engaged by Richard Basset to build the present remarkable gateway. The story is that there had been just before a quarrel in the Basset family, and that this gateway was a memorial of the reconciliation. On the front, in six compartments, are the arms of Basset, De la Bear, Tuberville, De Clare, Griffiths, and Morgan. Below is the following curious inscription, in three rectangular labels:

> Say cowdst thou ever fynde or
> Ever heare or see: Wordly
> Wretche or coward prove
> A faythfull frynde to bee.
> Rycharde Bassett having
> To wyf Katherine dowghter
> To Sir Thomas Juon, Knight
> Bwylt the Porch with the
> tonnes in Anno 1600
> His yeres 55, His wife 55.

In 1681 Colonel Sir Richard Basset, a great Welsh nationalist, called the bards of Glamorgan together, and, at the subsequent famous Gorsedd and Eisteddfod of Beaupré, all the rules of bardism and the metres of Welsh poetry were revised. After Sir Richard came his son Philip, who was the last of the old line to live at Beaupré, which was deserted by the family in 1715. After changing hands several times it was purchased by Mr. Daniel Jones, the first of the great local philanthropists. When he died in 1841, without heirs, it was found he had bequeathed the Beaupré estates to Captain Richard Basset, a great-grandson of the Philip Basset just mentioned. So once more there was a Basset at Beaupré, as there had been for seven hundred years before.

The party remounted and drove to Cowbridge for tea and the railway station. In the year 1091 the town was surrounded with a stone wall by Robert de St. Quintin. Part of this, with its simple gateway, remains on the south. The Grammar School (which was holding its prize-day) was endowed by Sir Leoline Jenkins, judge, and Secretary of State in the reign of Charles II.

(To be continued.)

ILLUSTRATIONS.

UNIVERSITY COLLEGE OF NORTH WALES, BANGOR.

We continue this week our series of illustrations of these buildings, of which Mr. Henry T. Hare, F.R.I.B.A., is the architect.

CATHEDRAL SERIES: ELY.—CHOIR TRIFORIUM.

We give this week two views of the triforium of the choir in our series on Ely Cathedral.

THE ROYAL SANITARY INSTITUTE.

At the sitting of the Engineering and Architectural Section of the Royal Sanitary Institute Congress at Belfast on July 26, papers were read by Mr. Chas. Brownridge, M.Inst.C.E., Borough Engineer and Surveyor, Birkenhead (Fellow), on "Town Planning of a Modern City from an Engineer's Point of View," in which he said:—

Much credit is due to the small band of earnest municipal reformers who, by persistent advocacy, were the chief means of calling public attention to the great waste taking place in our large growing communities owing to the want of systematic method in carrying on town extensions, and educating public opinion as to the need of legislation dealing with the subject, the outcome of which was the Town Planning clauses contained in the 1909 Act.

In considering how best to deal with the planning of our modern towns and cities every opportunity should be taken of studying existing examples of town planning to be met with both in the British Dominions and on the Continent, with a view to learning "what to do" and "what not to do."

Private enterprise has supplied a number of excellent examples of garden city and garden suburb planning, but the conditions existing in such examples, while teaching many excellent lessons, differ very materially from those met with on the immediate confines of our great industrial communities. In the former, as at Letchworth, &c., large areas of purely agricultural land have been acquired, and a complete town laid out and developed, having regard to all the accepted principles of modern town planning, but in dealing with the extensions to large towns existing conditions must play a large part in moulding our schemes; and whereas in the entirely new city factories and workshops, as well as the civic centre, can be placed where desired, in the case of most modern industrial towns the civic centre and the industrial district are already defined. In many instances the latter, not in positions which would be chosen if the district was being newly planned, are too often concentrated towards the centre of the area, and frequently when extensions to factories or works take place the land required is obtained by the absorption of the site of adjoining dwelling-houses, with a consequence that the housing difficulties are much aggravated, and the price of land forming the outer fringe of the town unduly inflated.

Many people advocate the advisability of taking workpeople to live further out into the country. If factories and workshops are placed in the suburbs this would be a feasible suggestion, but the ordinary industrial worker usually desires to live within reasonable distance of his work, and in the writer's opinion this is an arrangement that should be fostered rather than deprecated, as it enables the breadwinner within the limited time allowed to go home for meals, and thus ensures that the housewife prepares a proper midday meal, which is of material advantage to the children of the household. This does not always obtain where the head of the family has to take his meals with him to work. Where the manufacturer, as at Port Sunlight, Bournville, Earswick, &c., takes his factory or works some short distance out of town, and in conjunction with the manufactory or works deals with the housing of his workpeople, an ideal condition is achieved; but as existing conditions will in most cases for many important and evident reasons have to be accepted, it must be our duty, while doing what is possible to ameliorate and reduce any disadvantages arising from such existing conditions, to so plan and extend our towns as to obtain from the powers available every advantage from a health, housing, and sanitary point of view, and it is on the various points necessary to attain this result that those having to deal with the question of town extension and town planning will have to concentrate their serious attention and energy.

Mr. J. A. Brodie, M.I.C.E., City Engineer of Liverpool, at a sessional meeting of the Institute at Liverpool, described at some length the excellent work which has been carried out by him in that city, chiefly under the powers of a special Act obtained in 1908, to which some reference will be made later, and excellent work has been also done in this direction in many other towns and cities.

It may not be generally known that the townships of Birkenhead and Claughton, forming a portion of the Borough of Birkenhead, offer an excellent illustration of town planning.

The inhabitants of these two townships are now deriving great benefit from the excellent foresight of the Commissioners in planning and providing a number of wide and commodious roads, but the experience gained and the lessons to be learned from this example offer some notes of warning that may be interesting to study.

The cost of constructing wide roads appears for some time to have materially affected and raised the price of building land, with a consequence that building operations were somewhat retarded, and houses were in parts of the area unduly crowded together, and a revision of the Building By-laws and Acts applicable to the district was ultimately found necessary. For many years, owing to the length of formed street and the amount of undeveloped building land, the district was facetiously termed the "city of the future."

There is some difference of opinion as to whether the Town Planning Act is adequate and sufficiently ample to effect the purpose for which it was intended, but until some effort has been made to apply and test the Act it is not possible to make any definite assertion on this point, and, instead of jibbing at the start, it would be fairer (to use a sporting phrase) to "face the hurdles and run the course"; and if obstacles are met which cannot be surmounted, steps taken to educate and direct public opinion in such a manner that the necessary amendments or additions can be provided, and a proper way found to fully obtain all the advantages intended to be provided by the Act.

With regard to the extent of a district for which a town plan should be prepared, various suggestions have been made to the effect that probable development for twenty to thirty years should be provided for, but naturally this will greatly depend on local conditions. Whatever the extent decided upon, the scheme should be so designed and arranged as to form part of a scheme of practically illimitable extent, in order that if a further belt of land has at a later date to be planned, this additional area will work in and adapt itself to the portion already executed. Some authorities advocate the preparation of a plan for the complete laying-out or development of an area including not only the main and secondary roads, but the detailed planning of all the land included in the scheme; whilst others (amongst whom is the writer) prefer that the scheme should provide for the laying-out or planning of the main lines of communication, both direct and transverse, leaving the detailed filling-in or development of the land between to be carried out by private enterprise. This latter method will be the one most generally adopted, as it would not appear fair to bind the landowner (possibly some considerable time before he is prepared to develop his estate for building purposes) to a specific detailed scheme. This arrangement would also leave some scope for the initiative of the architect and surveyor, to whose domain this work properly belongs, and possibly prevent a monotony of type in estate planning. The local authority should, however, take powers to have full and effective control to ensure that the arrangements suitably conform to the general scheme, and that the means of intercommunication are satisfactory and ample.

It is not possible to make one special system of planning applicable to all districts, as the physical condition and the configuration of the land, together with local conditions and, possibly, drainage considerations, will materially influence the general planning of a district; and different areas within the same district may require different treatment.

In preparing the scheme it would be advisable to be ambitious and look well ahead, keeping in mind the fact that "construction" is more satisfactory and cheaper in the end than "reconstruction," and in preparing any scheme good, sound common sense, associated with all the assistance that practical knowledge and science can supply, should be exercised. The scheme should be clothed with all the lines of beauty and ornament that art, artist, or nature can suggest, and all the advice and assistance possible should be obtained from those capable of rendering it, in order that the scheme, when completed, may be the best that can be devised, both from a practical and artistic standpoint, and it should take into account all means of transportation, both by land and water, utilisation of water frontages, &c., and the allocation of land for recreation grounds, playgrounds, parks, sites for schools, baths, allotments, &c. Playgrounds for children should be fairly frequent and convenient to the areas to be served, but there does not appear to be any great objection to recreation grounds or playing fields for seniors being some moderate and reasonable distance away.

In considering both the improvement of existing and the planning of new areas, adequate means of access to railway stations should be provided. There is much to be said in favour of the Continental argument, that the railway stations, being the principal approach to a town, should be suitably designed and placed.

Railway companies might also be urged to pay some little attention to beautifying their stations and approaches in industrial areas similar to that frequently adopted with success at a number of suburban stations. The desirability of providing additional station facilities for suburban traffic must be borne in mind, and if distributing centres for goods were opened in conjunction with certain of these suburban stations it would materially reduce traffic congestion in the central area.

For the purpose of preserving records for future reference, photographs should be taken of old houses, old lanes, or characteristic features which will be transformed or altered by the scheme.

The question of dealing with, improving, and extending the existing main roads leading through the town, from town to town, or from the centre of the town into the country, and providing ample cross communication roads, will require careful consideration.

The writer knows of streets in several towns which, after having been widened at great expense, have had at a later date to be further widened, and, in certain instances, surplus land sold after carrying out the first improvement purchased back by the local authority at a greatly enhanced value.

It might be advisable in certain instances, in order to obtain a more direct route or avoid acquisition of expensive property, to design entirely new roads. In this case regard should be had to sewers, mains, and cables if it is proposed to entirely supersede the old road, and it would be desirable that certain of the roads be of extra width (say not less than 150 feet wide) arranged as promenade as well as traffic streets.

The provision of good wide boulevard or promenade streets furnishes facilities for recreation and exercise, and meets the requirements of a class who do not frequent public parks; and it would no doubt to a certain extent relieve the latter and make them available to their full extent for playing and recreation grounds, and enable them to be utilised as such rather than have them as extensively-planted and expensively-maintained ornamental parks, in which the most important and frequent notice appears to be "Keep off the grass."

Certain main roads should be multiple track roads, in order to provide facilities for slow and fast traffic, and in certain cases special routes for tramways provided, so that the track might be laid without the expensive underbed and paving necessary when laid in the carriage-way, but it is possible that the trackless tramway system may in future be adopted on many routes. The intersection of main roads should be arranged and planned to facilitate traffic, and any natural or artistic feature incorporated in the scheme.

The distance apart of main arterial and transverse roads will depend on local conditions, but should not in any case exceed one mile.

At a recent town-planning conference, held under the auspices of the National Housing and Town Planning Council, it was decided as advisable to ask for main arterial roads to be 80 ft. wide, and that the road-works on 50 ft. of this width to be made at the expense of the owners. It was further suggested that in secondary roads a width of not less than 50 ft. should be provided between buildings. These widths, however, would in special cases be materially increased, and it is possible that the financial terms outlined in these recommendations may not be obtained; but as we are advised that local authorities should endeavour to secure definite agreements with any person who may be affected by the proposals, the recommendations referred to could form a basis of negotiation with the owners.

In Birkenhead a considerable length of secondary roads, 60 ft. wide, have been constructed, in which the estate owner has given land for the full width, and generally paid for street works equivalent to those for a 36-feet street, the remaining cost being paid by the Corporation. In these roads 18 feet of the width is gravelled, and may be added to the footway or carriageway, as future requirements demand.

In dealing with the extent and character of the road works, it may not be necessary to proceed for some time with the construction of some roads, but, having got their lines prescribed under the Act, the works might be proceeded with from time to time as found necessary; and to reduce the cost of street works, whilst ensuring that ample space is provided between buildings, some portion of the width of the road might be planted with shrubs, or formed with grass, gravel, or tar asphalte. In planting trees (which the writer presupposes will be placed in most, if not all, of the proposed roads) care should be taken that they will not require to be disturbed when the carriageway is widened.

It is often suggested that street works should be materially cheapened so as to facilitate building operations. The writer agrees with proposals in this direction so far as they deal with the area of the carriageway or surface to be made; and not with the quality of the material or work to be used in constructing the roads; as, where streets are provided for vehicular traffic, no limitation can be placed upon the weights carried by vehicles; and if the street works are not satisfactory expensive reconstruction or expensive upkeep will ultimately devolve upon the community.

It is interesting to note that in many of the garden villages where kerbs and impervious surfaces to the footpaths were not laid in the first instance these have since in many of the streets had to be provided owing to experience demonstrating their necessity.

It is also advocated that non-traffic streets of narrow width and short *culs-de-sac* might be constructed. In considering this question, it should not be forgotten that districts which are of a rural or semi-rural character at the present time will in a few years become urban, and all roads should be carefully designed, having regard to this fact, and to the adequate police supervision and lighting, so that women and children may at all reasonable hours safely traverse them.

Building by-laws and their operation are closely associated with the administration of the Act, and it is to be regretted that by-laws are not more elastic in their interpretations. A 9-inch wall constructed of good hard bricks laid in hydraulic mortar is much more satisfactory than a 14-inch wall built of imperfectly-burnt bricks in fat lime mortar; but by-laws make no provisions for such facts, and it would be advisable on public grounds if building by-laws could be simplified and revised so as to operate more stringently against the jerry builder, and give some little advantage to the conscientious and sound builder.

Some standard generally applicable to districts should be introduced, in order to remove some of the anomalies now existing, buildings on the immediate outskirts of urban districts in many instances being erected under more lax by-laws than apply to those erected within the urban area. If by-laws are too stringent they should be modified, if too lax they should be strengthened; but so far as they apply to quality of construction they should be uniform.

The limitation of areas for special purposes, the restrictions to be placed upon the land as to the number of houses per acre to be erected, the defining of shop or trading areas, as well as areas upon which the erection of factories, warehouses, or workshops are to be permitted, are matters calling for careful thought and consideration.

The limiting of shops to certain centres and certain streets would materially add to the brightness of shopping centres, and it would appear advisable to rather limit specific areas for the erection of dwelling-houses than allocate specific areas for the erection solely of manufactories and workshops; otherwise it might possibly prevent an enterprising manufacturer erecting in the immediate vicinity of his works suitable dwellings for his workpeople.

Deciding the number of houses to be erected per acre, and possibly the number of storeys or height of buildings, are questions calling for much thought and consideration. If the number is unduly restricted, it might possibly limit the erection of self-contained houses, and encourage the erection of tenement houses with all their disadvantages; and it is advisable that this subject should be dealt with in a fair-minded and liberal spirit, keeping in mind the fact that land on the immediate outskirts of our industrial areas frequently changes hands at a price bordering upon £1,000 per acre before a street is laid out.

Thirty-eight houses per acre (including sites of streets), of a rental varying from 6*s*. 6*d*. to 10*s*. 6*d*. per week clear of taxes (with rates at 7*s*. 2*d*. in the £, and 1*s*. in the £ for water rate), have been erected in Birkenhead under the provisions of by-laws based upon the model by laws.

It must be admitted that areas so developed are too crowded and congested, and if not more than twenty houses per acre were permitted this would give approximately one hundred persons per acre and be reasonable for suburban districts; while the number per acre in the more rural districts might possibly be further reduced to ensure adequate allocation of land for the purpose of open spaces, playing-grounds, allotments, &c.

It is frequently advocated that every house should be provided with a large garden. Until it is assured that all occupiers are prepared to properly utilise and keep in order such gardens, it will be preferable, while providing a number of houses with gardens attached, to erect property with gardens which are communally or publicly maintained.

Stringent by-laws or regulations will be required to prevent yards and gardens being used as poultry-runs or for undesirable purposes. In districts where land will usually be developed by builders whose interest in the property erected ceases when a sale is effected, inconvenience may arise unless some control over these matters is retained by the governing authority: and, while ensuring the provision of adequate space in connection with buildings, it would appear to be desirable that additional garden accommodation or open space should be provided in the shape of allotment gardens reasonably adjacent to the houses.

In most of the garden suburbs considerable power appears to be retained by the authorities under whose direction the areas have been developed in regard to the utilisation and maintenance of the gardens and open spaces.

The question of redevelopment is an important one, and gives difficulty in all rapidly-growing areas. Cases arise of districts in which large houses erected in ample grounds, and let at rents bordering upon £120 per annum, are passing through a transition stage, the tenants leaving the district for the outskirts or the country. Circumstances arise compelling certain of the owners to realise their property at a much-depreciated price, and the property in many instances passes into the hands of speculative builders. The land not being stringently restricted, the parties acquiring the property pull down the existing houses with a view to erecting rows or terraces of small houses, which, while complying with the by-laws, depreciate adjoining large houses, and generally affect the amenity of the district. The ultimate redevelopment of the district is simply a matter of time, and the question calls for careful consideration in regard to the best manner of bringing about the inevitable change so as to inflict the least hardship on the adjacent owners who are not prepared to immediately participate in the redevelopment of their area, and it would be desirable in this work to apply as far as possible all existing powers for the retention of air space, buildings over forecourts, areas, &c.

The estimated cost of any scheme will be somewhat difficult to accurately prepare until some experience has been gained as to the possible interpretation to be placed on the various clauses by the arbitrators or valuers to be appointed by the Local Government Board, and how the cost of road works has to be borne; but in connection with this point it should be borne in mind that no compensation is payable in connection with the provisions inserted in the scheme, which prescribe: The space about buildings limits the number of buildings to be erected, or prescribe the height or character of buildings which the Local Government Board consider reasonable.

It will be advisable, therefore, to fully consult the Board on these points, and if compensation is not to be paid respecting these matters, conform to their requirements. Actual experience on these points will no doubt shortly be available, as a number of schemes are in active preparation, and the necessary formalities required by the Act are in process of practical application.

Much of the immediate expense of a scheme will no doubt fall upon the larger authorities as the responsible authority under the Act, as they will usually be the parties initiating it; the pressing need of providing for the future having generally been brought home to the larger communities by the necessity of spending large sums of money on street improvements, widenings, and redevelopments within their area.

It is frequently stated that town planning proposals necessitate spending money entirely for the benefit of future generations. Reasonable and judicious expenditure upon necessary town improvements and town planning schemes is a sound business proposition, and all improvements, of whatever nature, are practically for future benefit. It is only epitaphs, obituary notices, and vain regrets that are for the past; our care is and should be for the present and future.

Owing to want of foresight in the past many of our great industrial communities have been put to considerable expense. It is stated that in the city of Leeds, which is now engaged in carrying out a large improvement and redevelopment scheme within the city, the cost of the work has added 1s. to the rates, and this would appear to show that prevention would be better than cure.

The subject of town planning has at all times received the careful consideration of the borough engineer and surveyor, who, owing to his position and technical training, has been frequently required to suggest schemes of improvement, in addition to advising upon the various proposals for estate developments carried out within his district. The powers conferred upon local authorities have, however, in the past been too limited to deal with the development of towns in a thorough and comprehensive way. The Act of 1909 offers some hope that this state of affairs will in the future be remedied, and is generally welcomed and will be willingly administered by the profession to which the author has the honour to belong.

In submitting these notes for the purpose of discussion the writer would suggest the following special points for the intercommunication of views and elucidation of opinion—viz.:

1. The extent of district advisable to be included in a scheme.
2. The desirability or otherwise of conjointly with a town planning scheme carrying out a scheme of street improvement, possibly combined with a housing scheme.
3. The width and character and distance apart of (*a*) main radial roads, (*b*) main ring or cross roads.
4. The degree to which it is advisable to relax: (*a*) by-laws respecting the construction of new streets, (*b*) by-laws respecting the construction of new buildings.
5. The number of houses to be erected per acre; the limitation of areas for special purposes and how this can be best applied; and the formation of shopping centres.
6. How best to deal with the redevelopment of areas.
7. The extent of provision to be made for parks, recreation grounds, open spaces, gardens, school sites, and public buildings.

In conclusion it might be pointed out that while all engaged in municipal government work are being educated up to a proper standard in regard to this matter, the education or training of the individual citizen should be borne in mind, and efforts made to inculcate in him a proper standard of personal responsibility so that he may appreciate and properly apply the benefits to be derived from the Act.

Mr. James Munce, M.Inst.C.E., then read his "Notes on how a town has succeeded without the Town Planning Act," in which he gave a historical sketch of the municipal development of the city of Belfast, and the various steps taken by its rulers for the improvement of its town planning.

The following discussion on these papers then took place:

Mr. R. Welch said he thought they had suffered in Belfast from the fact that the town was planned on Scotch rather than English lines, for it would be noticed that the houses had not a very liberal supply of garden. In county Cork and other places they found most delightful towns which were built on the English system, but in Belfast they found straight streets, and the houses built up to the roadway, and nowhere for the children to play except in the roadway. The Scotch idea was a small house. It was thrifty and economical, but there was no idea of what they might call the refinements of life. The English, on the other hand, had an idea of the refinements of life, and they had their gardens, and so on. In Lancashire, he was sorry to say, they had got away from the English idea.

Mr. Luke M. Hill (George Town, British Guiana) said he must express his appreciation of Mr. Munce's paper in regard to the improvements at Belfast. When he left Belfast the population was only about 175,000, but it had now increased to nearly 400,000. When he arrived here a few weeks ago he went about to see the alterations since he lived here forty years ago, but although the roads were still there they had been built up to, and had gone entirely out of his remembrance. He had been engineer of George Town for thirty-two years, during which time he had laid out four new districts, containing about twenty miles of streets. Their streets there were all laid out rectangular, which, although monotonous, was convenient. None of the streets laid out under his supervision were less than sixty feet wide, and many were 100 feet. They had difficulties to contend with there in the fact that the average level of the streets was 4½ feet under sea-level, so that they had to make a large provision for the rainfall by canals and reservoirs, which was then discharged into the river by means of sluices. The canals were arranged either down the centre or by the sides of the streets, and when he referred to the width of the streets as 60 feet, this was exclusive of the canals, and in some streets, where the canals were down the centre, they were 130 feet wide. The reservoirs which were not used for drainage purposes were planted with aquatic plants, which added much beauty to the town. He had made a point of going in for street planning, and it had helped to give the city the name of the Garden City of the West Indies. Unfortunately, during his recent visit to the West Indies, Sir Rupert Boyce called at George Town, and he said their street planning would tend to harbour mosquitos. He had rather a hard fight to keep the trees he had been planting for the last thirty years.

Mr. S. Brodie (Blackpool) said in many respects Birkenhead was an ideal town, and therefore Mr. Brownridge had brought before them a counsel of perfection. They had an ideal state of things in regard to the width of the roads there which he was afraid few of them could hope to attain to. Mr. Munce had entitled his paper "Notes on how a town succeeded without the Town Planning Act," but he had referred to about half a dozen local Acts which did not cease to be town planning Acts merely because they were local Acts. They would all agree that Belfast was extremely well laid out. In one case at Blackpool they had widened a road from 22 feet to 60 feet, and by the sale of surplus land he had been enabled to carry out the improvement and put down a main sewer without costing the ratepayers a penny.

Mr. W. Whitaker said that the discussion had all been on the side of the authors, but he would like to say something about the fetish of broad and straight roads, and would give an example of a town which owed a great deal of its beauty to not having its roads either broad or straight—he referred to London. He considered that many of the beauties of London would be spoilt if they had too much widening or straightening of streets. Was there a street with better shops than Bond Street? and yet that street was not 50 feet wide in any place. It was a great deal easier to cross a road 50 feet wide than one 100 feet wide. He liked always to see both sides of a question and also to see shops on both sides of a street without the risk of being run over. For main lines of communication they wanted broad streets, but he hoped they would not consider that every street was to be not less than 50 feet wide, for if they did they would run the chance of a city being made frightfully monotonous and confoundedly ugly. In the town in which he lived—Croydon—he was glad to say that, owing to the assistance of Mr. Burns, they had gloriously defeated the Corporation on the question of a road-widening, and saved a quaint old building.

Mr. C. Brownridge said every engineer would agree with Mr. Whitaker, for they did not want to destroy anything of a picturesque or historical nature. On the other hand, they wished to preserve every feature of that kind. They must admit that a narrow street gave more facilities for shopping than a wide one, and he had pointed out the necessity for shopping centres. It was all very well to point to isolated instances of inexpensive street-widening, but they had to admit that there were many improvements which cost them a lot of money. There were those who advocated the taking of land, but piracy on the high seas had been stopped for many years, and he did not see why it should now be brought to land. They must be prepared to act as honest men, and pay for what they wanted.

Mr. Munce said that the property-owners of Belfast assisted them in making wide streets. They did not attempt to make wide roads or take down old buildings, as anyone would see who rode round the town. What they really wanted was to see the houses set back from the roadway, so as to get the space rather than that the roads themselves should be too wide.

ROYAL INSTITUTE OF BRITISH ARCHITECTS

THE question of establishing the examination required by Clause 2 of the Supplemental Charter to be passed by Licentiates who being otherwise qualified desire to be admitted to Fellowship of the Institute has been for some time under consideration by the Council. The matter having been referred to the Board of Architectural Education, a scheme has been drawn up which has received the approval of the Council, and arrangements are in progress for holding an examination at an early date.

The candidate will be required to submit for the approval of the Council working drawings of one or more of his executed buildings, which may be supplemented by photographs thereof, and by original sketches or measured drawings of actual work. Should the work so submitted be, in the opinion of the Council, of sufficient merit, the candidate may be exempted from any further examination. Should the work so submitted be, in the opinion of the Council, inadequate, his application will not be further entertained. If the drawings submitted are approved by the Council, the candidate will be required to submit himself to an examination which will be held on the premises of the Royal Institute of British Architects, or elsewhere, as may be appointed by the Council of the Royal Institute.

Ten days before the examination is held a list of subjects will be issued to all candidates, and from this list each candidate will be required to select one subject, and to announce to the Secretary of the Royal Institute, five days before the examination, which subject he selects. When the candidate attends at the appointed place of examination, he will be furnished with particulars of the selected subject, and he will have to prepare a set of working drawings of the subject, and such details as may be required, together with full descriptive notes. The candidate will also be required to write a short paper or report on a subject previously selected by himself and approved by the Council. Four days will be allowed for the examination, and the candidate may be required, at the option of the Council, to attend subsequently for an oral examination on his papers. Candidates must provide their own drawing-boards and instruments. The fee for the examination will be six guineas, which sum must be sent to the Secretary, R.I.B.A., with the candidate's announcement of the subject which he selects. If the candidate fails to pass the examination the fee will not be returned to him, but he will be allowed to sit for one subsequent examination without payment of any further fee.

Should a candidate be admitted and pass, he will be qualified, subject to Section 8 of the Charter, for candidature as Fellow.

Should a candidate not be passed by the Council he will be informed of the fact, but the names of unsuccessful candidates will not be announced or published.

THE SUMMER EXAMINATIONS.

The Preliminary.

The Preliminary Examination, qualifying for registration as Probationer R.I.B.A., was held in London and provincial centres on June 12 and 13. Of the 146 candidates admitted, claims for exemption from sitting were allowed to the number of forty-four, and the remaining 102 candidates were examined.

The passed candidates, with those exempted—125 altogether—are as follows:—

Mohamed Afify, James Taylor Aldred, Harold Campbell Ashenden, Charles Herbert Aslin, Percy Armitage Astley, Clifford Gerald Backhouse, Bruce William Seymour Stiles Baily, Herbert Donald Baldwin, Walter Baldwin, Horace Beaverstock, William Walter Begley, Noel John Byron Bell, Kenneth John Bonser, Roy Bowes, William Braid, Joseph Bridge, Rowland Egerton Brinckman, Edward Hallett Bucknole, Joseph William Bull, Harold Burleigh, Edgar Burnett, Dudley James McPherson Burton, Stanley Howe Byrt, Gareth Wilfred Capes, Cyril Cliff Cheek, Christopher Christie, Albert Rowland Clough, Ernest Clough, Robert McDowall Fothergill Cooke, Frank Douglas Cooper, Gerald Linford Crouch, Idris Davies, Charles Derry, Richard Dobson, William Doddington, John Edwardes-Evans, Eric Ewart Evans, Thomas Cwmanne Evans, Graham Tom Eveleigh, John Camplin Farrer, William Ernest Foale, Thomas Forster, Robert Frater, Nelson Fyfe, John Gorbell Goodyear, Wilfrid Bernard Gostling, Robert McGregor Graham, Wm. Stanley Grice, Edgar Rees Griffiths, Wm. Geo. Gush, Daniel Carby Hall, Chas. Alfd. Harding, Eric James Hatherell, Arthur Jas. Hayton, Geo. Leslie Head, Leonard Heywood, Stanley Honour, Roland Cantis Horsley, Hussein Izzy, Harold Edgar Jarvis, Frederick George Hayes Jenkins, Charles Frederick Jones, Ieuan Roland Jones, Robert David Jones, Westbury Lloyd Jones, Lewis John, Cecil Herbert Langdale Kelham, Norman Kelley, Frederick Henry Lambert, Cecil Walter Langlands, Robert Tattersall Lapierre, Joseph Frank Lawson, William Armitage Ledgard, Harold Alfred Lister, Albert Lloyd, James Logan, Ernest Cecil Lomer, Sidney Harold Loweth, John Gordon McBeath, Robert Norman Houghton MacKellar, Gilbert Marshall MacKenzie, Malcolm Munro MacPherson, George Andrew Marshall, Robert Arthur Mather, John Nelson Meredith, William Alexander Morris, Alan Lee Mortimer, Donald John Moss, Thomas Whitfield Moss, Bernard Newboult, Joe Normanton, William Richard Owens, William Gordon Parkin, Leslie Horton Partridge, Francis Burlinson Percival, Robert William Pickin, James Radcliffe, Cyril Bland Radnor, Vasant Raghunath, Frederick William Rees, Edmund Arthur Reeve, Ernest Claude Ridge, Edwin Frederick Rolfe, George Alfred Rose,, Edward Gilbert Rowntree, John Newton Rutherford, Lester Howard Sacré, John Leigh Percy Sace, Percy C. Schulke, Percy Skelding, Foster Rowland Stobbart, Ernest Tudor Stythe, Joseph Cedric Swallow, Martin Bartley Taylor, Richard Thorburn, jun., Gilbert John Trigg, William Maurice Tripp, George Oswald Venn, Adrian Waterlow, Stephen Grylls Wilson, Goodman George Winebaum, Edmund Percy Wingrove, James Gerald Worth, Sydney Wright, Laurence Muskett Yetts, B.A. Cantab.

The Intermediate.

The Intermediate Examination, qualifying for registration as Student R.I.B.A., was held on June 12, 13, 15, and 16; 127 candidates were examined.

The passed candidates, given in order of merit as placed by the Board of Examiners, are as follows:—

William Park, Thomas Alexander Page, John Ewart March, John Bredel Matthews, Benjamin Donaldson, James Andrew Clarke, Robert Wemyss Ferguson, Philip Dennis Bennett, Philip Humphry Wyatt, Thomas Henry Chalkley, Reginald Wilcox Lone, Harold Crone, Clifford Wigg Craske, Leslie Youngman Harris, Collings William Brown, Allan Lionel Freaker, Robert McLachlan, Harold Albert Thomerson, Stanley Howe Fisher, James Edward Marchinton, John Henry Odom, William Holden, Frederic Bertram Last, Francis Clemes, Rees Phillips, William Harold Price, Denis Henry Walker, William Allison, Judah Weinberg, Robert Maclaren Love, William London Semple, Ernest Willson, Andrew Stuart Burnett, Howard Moir Archibald, William Arthur Banks, Norman Spencer Benison, Guy Bramwell, Thomas Hargreave Broomhall, Charles Norman Chard, William Wilmot Thorne Chine, Thomas Stapledon Copplestone, Lancelot Ralph Gawen Errington, Eric Carwardine Francis, William Hubert Godwin, Joseph Garnet Hands, Ernest James Hickman, Trevellyn P. Jenkins, Godfrey Horton Ledger, Theodore Ellis Legg, Samuel Douglas Meadows, Harold Edward Moore, Cyril Savage Morley, Cuthbert Edward Newton, Rashbehari Nandi, Bernard George Norton, William Edward Wallis Terrell, Geoffrey Ronald Gilbertson Topham, Arthur Eric Townley, Roland Keith Young.

Colonial Examination.

The following candidate passed the Intermediate Examination held in Sydney in January last, viz.:—

Gordon Samuel Keesing.

Exemptions from the Intermediate Examination.

The following Probationers, possessing the qualifications required by the regulations, have been exempted from sitting for the Intermediate Examination, and have been admitted as Students R.I.B.A.:—

Percy Joyce Adams, Percy Maguire Andrews, Guy Maxwell Aylwin, Nasserwanji Mancherji Merwanji Bhownaggree, Douglas Morley Griffin, Charles Alfred Harding, Harold Edward Moss, William Richard Owens, Ivor Mervyn Pritchard.

The Final and Special.

The Final and Special Examinations, qualifying for candidature as Associate R.I.B.A., were held in London from June 29 till July 7. Of the 136 candidates examined, 59 passed, and the remaining 77 were relegated to their studies. The passed candidates are as follows—the † prefixed to a name signifying that the candidate entered for the Special Examination, which is designed for architects in practice and chief assistants exempted by the Council from the Preliminary and Intermediate Examinations and from submitting Testimonies of Study:—

Maurice Spencer Rowe Adams, Laurence Mortimer Angus, M.A., †Edward Ernest Barks, †Paget Logan Baxter, Hubert Joseph Benians, William Thomas Benslyn, John Archibald Bessant, Richard Henry Percy Bevis, Arthur George Blackford, Kenneth Stephen Broad, Baldwin Brown, Murray Brown, John Edgar Bullock, Leonard Harris Clarke, Joseph Charles Gladstone Davies, William Frederick Davies, †Charles Davis, †Charles Alva Edeson, Arthur Frederic Evans, Leonard John Finning, Wilfred Thomas Garbutt, Bernard Malcolm Goodwin, Wilfred S. Gorringe, Guy Donne Gordon Hake, Charles Alfred Harding, Geoffrey Wyville Home, Thomas Cecil Howitt, John Norman Keasley, Frank Wardel Knight, Wilfrid Lawson, Adrien Denis Leroy, Philip Norman Logan, Charles William Long, William Lucas, Moritz Richard Martin, Frederick Edward Mennie, †Harold Ian Merriman, Alfred Hugh Mottram, George Burgoyne Owen, Thomas Abel Parker, John Wilson Paterson, Ivor Mervyn Pritchard, Hayward Lewis Samson, Bernard Wardlow Habershon Scott, Charles Malcolm Swannell, Francis Harold Swindells, Michael John Tapper, Harold Thornton, Arthur George Warnham Tickle, Harry West, †Johannes Thorwaldsen Westbye, Arthur Eli Mitchell Whitehouse, Norman Wigzell, Llewellyn Ebenezer Williams, Allen Woodward Wilson, Cecil Reynolds Winter, Harry Wormald, Christopher Wright, Allan Murray Campbell Young.

(To be concluded.)

CALCULATIONS FOR RETAINING WALLS.

(Continued from last week.)

11.—*The Requirements of Stability.*

In order that the equilibrium of the wall may be stable (*see* paragraph 9) the resistance to overturning must be greater than the overturning power of the wind, or $W \times \frac{t}{2}$ must be greater than $P \times \frac{h}{2}$.

As $\frac{h}{2}$ is fixed then P must be reduced. Fig. 5 is the triangle of forces repeated, a smaller value being taken for $P = bc$. The resultant will now be ac, which, when transferred to fig. 3, will intersect AB in C.

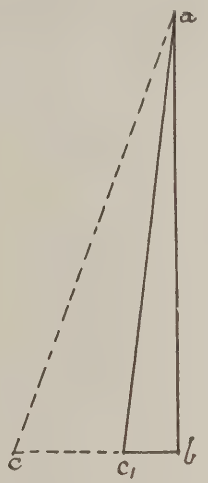


FIG. 5

Fig. 6 represents the joint AB detached for clearness.

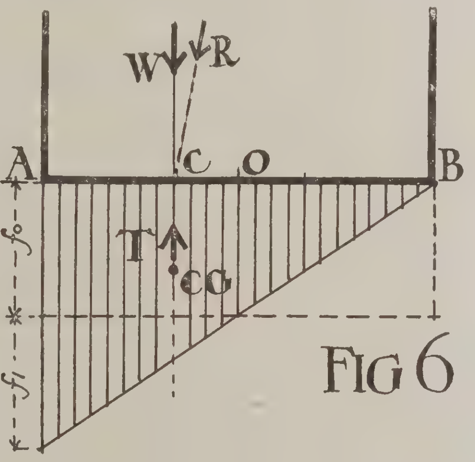


FIG 6

12.—*The Effect of the Resultant.*

The resultant, acting as it does at an inclined angle, will have two effects: it will tend to crush the material, and it will tend to cause the upper part of the joint to slide over the lower part. R must therefore be split up into two forces—one vertical (to cause crushing only) and one horizontal (to cause sliding only).

The two forces are called the vertical and horizontal components of R, and are represented on fig. 5 by ab and bc respectively. As ac could be used in place of ab and bc, the reverse holds good, and we can use in place of R its vertical and horizontal components.

13.—*Failure by Crushing.*

Consider first the vertical component of R. In magnitude this $= ab =$ W. When W acted at O, the centre of the joint, the stress was uniform over the whole joint, and the centre of gravity of the resisting stresses (f_0) was immediately under the point of application of W. (*See* paragraph 5.)

Now that W acts at C the stress cannot be uniform, but the C.G. of the resisting stresses f_0 must be under C.

In the case taken AC $= \frac{1}{3}$ AB, and, seeing that the C.G. of a triangle lies on a line parallel to its base and $\frac{1}{3}$ the vertical height between the base and the apex, then the figure representing the stresses which will have its C.G. below the point C must be a triangle, and its area = total stress = area of stress diagram at fig. 3.

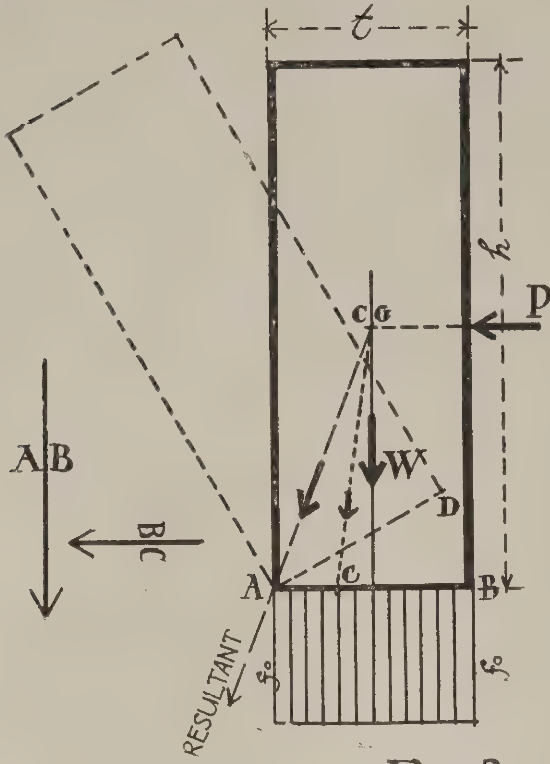


FIG. 3

Then its base must be twice the f_0 found at fig. 3, and the triangle representing the distribution of stresses will be ABD (fig. 6).

A.D. $=2f_0=2\times\frac{1}{2}$ ton $=1$ ton per foot super.

The crushing at A is therefore one ton per square foot, and at B is nil. Notice that at A an additional stress f_1 (in this case equal to f_0) has been added, and at B subtracted from the stress diagram obtained by paragraph 5.

(*To be continued.*)

NOTTINGHAM ARCHITECTURAL SOCIETY.

THE Nottingham Architectural Society selected Windsor Castle and Eton College this year as the places to visit on their annual summer excursion, and a large party of members and friends joined in the outing on July 27. The Society greatly regretted that, owing to family bereavement, the President, Mr. Robert Evans, was unable to join them. The party included Mr. E. R. Sutton, Vice-President; Messrs. A. Marshall, W. V. Betts, W. D. Pratt, W. R. Gleave, F. W. Gregory, R. S. Spencer, W. H. Taylor, S. G. Walker, and the Hon. Secretary, F. M. Royle.

Mr. Nutt, the resident architect of the Castle, kindly met the Society, and personally explained the many interesting architectural features. A visit was first made to the quaint half-timbered horse-shoe cloisters, built by Edward IV., and then the party went over the curfew tower constructed by Henry III., which contains a peal and clock over 300 years old and the famous curfew bell. St. George's Chapel, a magnificent specimen of Perpendicular architecture, was then fully explained. The banners and crowns of King George, Queen Mary, and the Prince of Wales, which have been recently added to the Knights' Chapel, were pointed out. These, with the other helms, crests, and banners, form a very beautiful and impressive example of heraldry.

The royal mews, which cover about four acres, were fully inspected. They contain the semi-State carriages and postillion landaus. Among other interesting objects pointed out were the well-known pony carriage of Queen Victoria and the miniature carriages and broughams of the royal children. The eighty horses in the stables include the beautiful grey and bay carriage and saddle horses, and the little ponies used by the royal children. The pony used by General Cronje in the South African war is also kept at Windsor. Great care is taken of him, which he evidently appreciates by his good temper. The party was then conducted through the State apartments, which contain priceless pictures and magnificent specimens of arms and armour.

A visit was then paid to Eton College, founded in 1440 by Henry VI., originally for twenty-five scholars. It is interesting to note there are now over 1,000. Through the courtesy of the Provost, the Society were shown the school chapel, which contains many beautiful memorials of distinguished Etonians; the quaint old school dining room with its three fireplaces and iron reading desk; and the library, which contains a very valuable collection of old books and documents dating back to the foundation of the college.

The return to Windsor was made through the historical "playing fields of Eton," from which the best views of the Castle can be obtained. Mr. Nutt then conducted the Society through the Albert Memorial Chapel, converted by Queen Victoria into one of the most magnificent memorials ever dedicated to the illustrious dead, and in the crypt of which King Edward the Peacemaker is interred.

During dinner at Windsor a telegram was received from the President, and a reply sent; and the thanks of those present were given to Mr. Spencer, to whose exertions the successful programme of one of the most interesting summer excursions of the Society is due.

Correspondence

Hyde Park Corner.

SIR,—The letter of Mr. Mark H. Judge is well worth consideration, but there is one point I should like to draw special attention to—would the position suggested on the estate bought by Messrs. J. C. Humphreys be a quiet one, for I take it that any question of the removal of St. George's Hospital would very largely depend on the question could a site be found close by, and if so would the terrible noise of street traffic be thereby obviated? Personally, I should be sorry to see St. George's Hospital removed simply because a few pounds might be gained by removal to a side street; but if it is, then better have a good paying hotel than an opera-house nearly always a failure, and I certainly consider that the position would probably tend to such a result.—I am, &c.,

MEDICO.

Politics and a Profession.

SIR,—Which pays best—to be a member of Parliament with a decent salary, or to be a Surveyor, Rate Collector, Water Inspector, Sanitary Inspector, and officer under the Town Planning Act? The cutting is from *The Llangollen Advertiser*, and is interesting as to the "highly-paid official."—Yours truly,

WANDERER.

[The cutting which our correspondent sends refers to the appointment of a Surveyor, Sanitary Inspector, and officer under the Town Planning Act, 1909, at a salary of £100 a year, with liberty to engage also in private practice, for which, however, it was the general opinion of the Councillors that he would have no time to spare when his official duties were discharged.—ED.]

Hampstead Town Hall.

SIR,—Under your heading of "Varieties" in this week's issue *re* foundation-stone laying at above, would you mind mentioning next week that we are the general contractors.

We are also commencing a contract for alterations and new exits and entrance at the Savoy Theatre in the Savoy Hotel Courtyard for Mrs. D'Oyly Carte.—Yours faithfully,

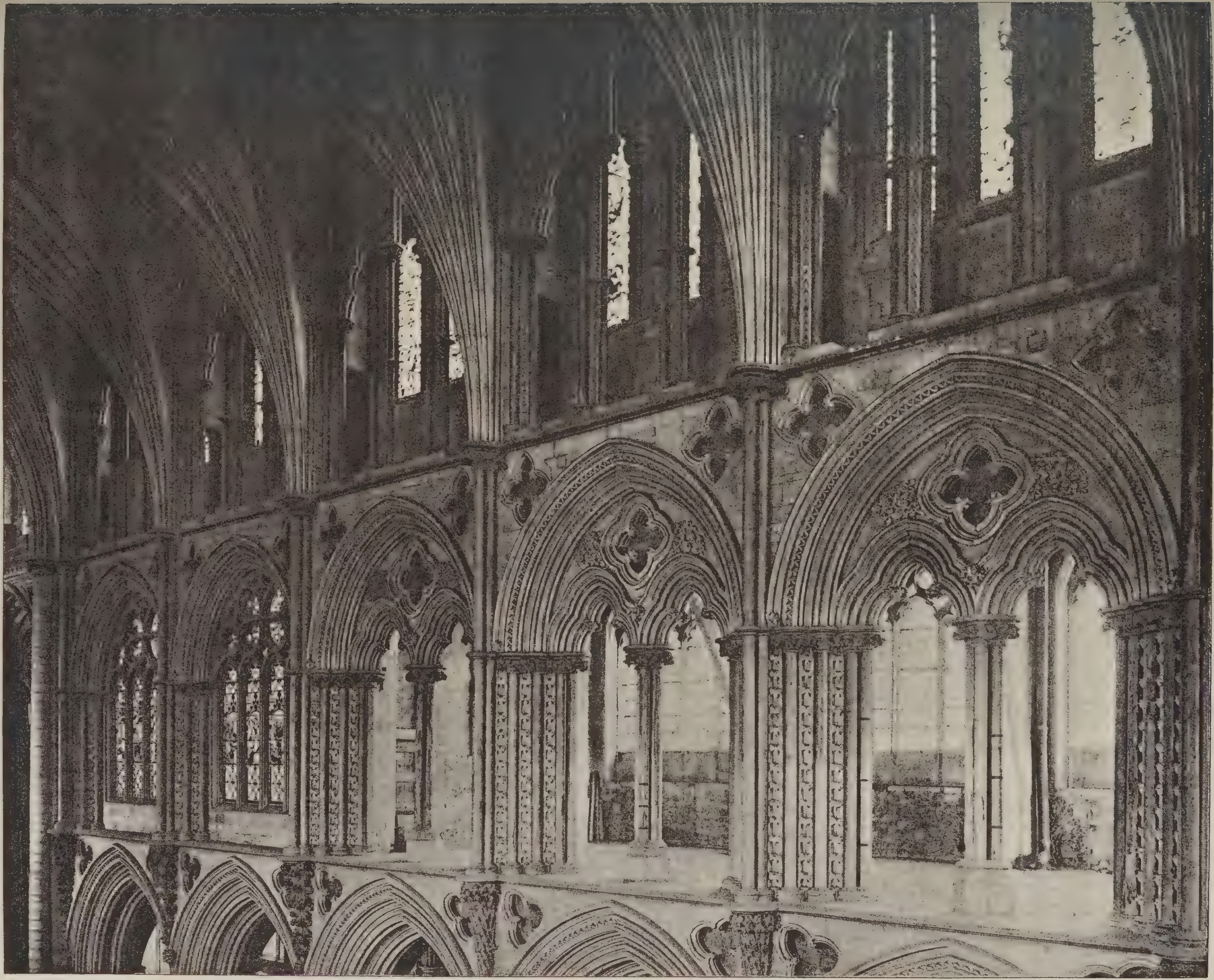
July 28. PATMAN & FOTHERINGHAM, LTD.

King Edward Memorial.

SIR,—Following on your most apposite insertion of my letter to you of July 24, *à propos* the above subject of momentous and artistic interest, I hasten to intimate that in exalted quarters I have been desired to make a complete design in oils anent the tentative crude sketch, and which accompanied my letter, by the 18th prox., with a view that His Majesty may see the same prior to the design in question being taken by the Hon. President of the International Arbitration and Peace Society to Rome, Mons. Felix Moscheles, the same to receive a conspicuous place at the royal instigation of H.M. the King of Italy at the opening of the historical Peace Exhibition, October 15, simultaneously with the opening of the International Geographical Congress within the precincts of Fort St. Angelo, "Mole Adrian," and that His Britannic Majesty may receive the universal criticism thereon by the morning of their Majesties' departure for the Imperial Coronation Delhi Durbar, November 9, the 70th natal anniversary of His Majesty's revered and never-to-be-forgotten father, King Edward VII.—Yours truly,

LIEUT. G. DAVIES, R.N. (retired).

The Architect, Aug: 4th 1911.



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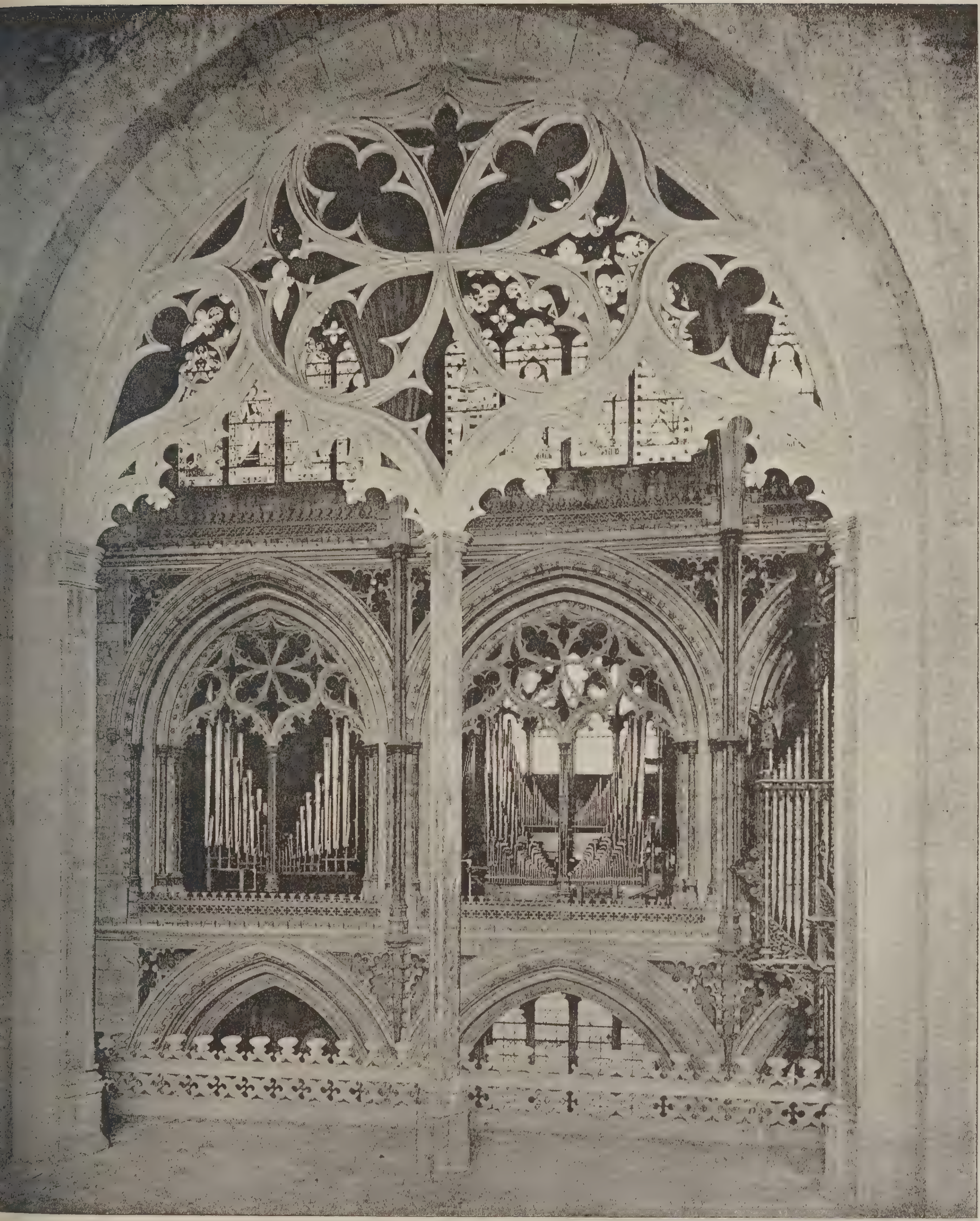

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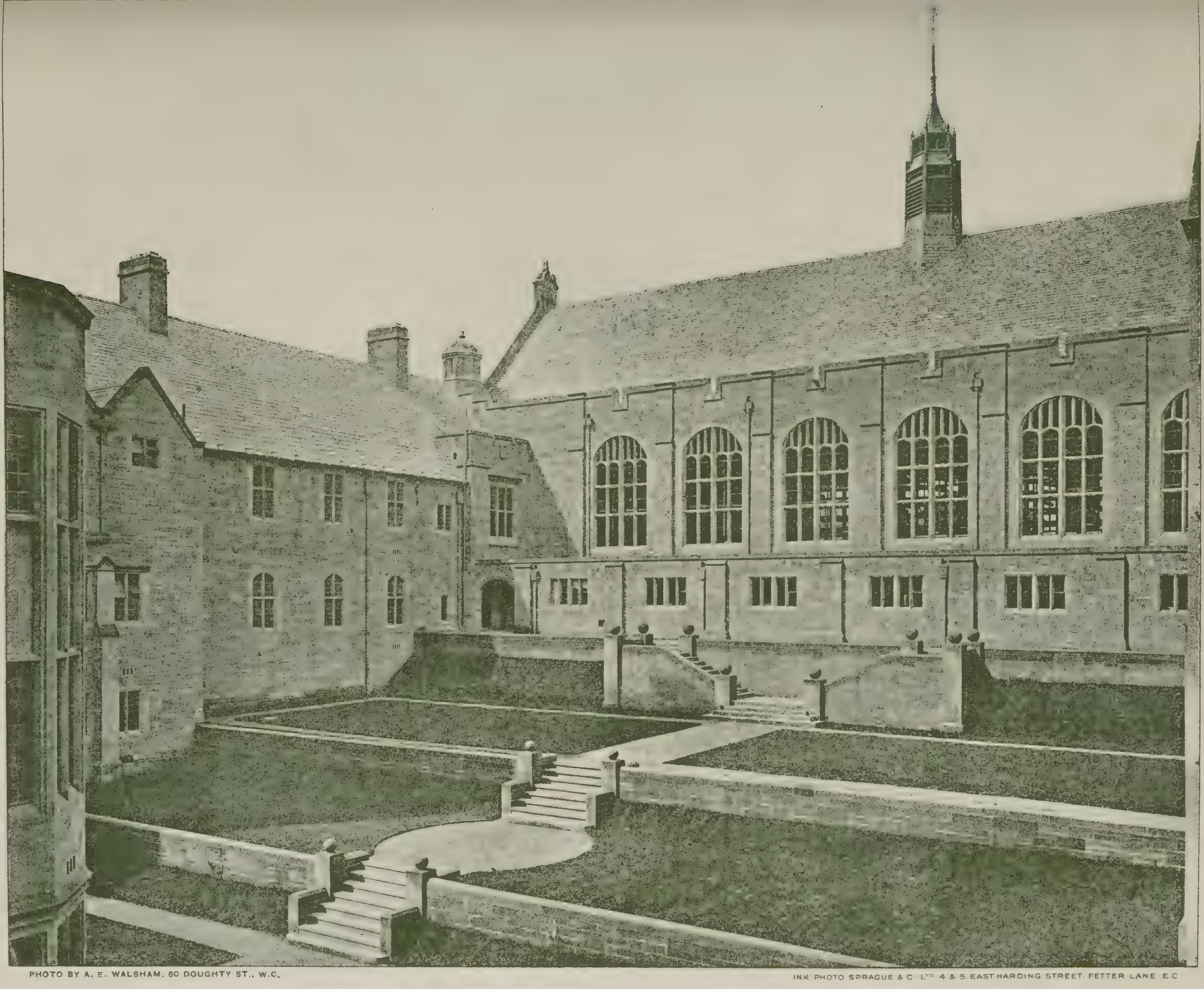
The Architect, Aug: 4th 1911.



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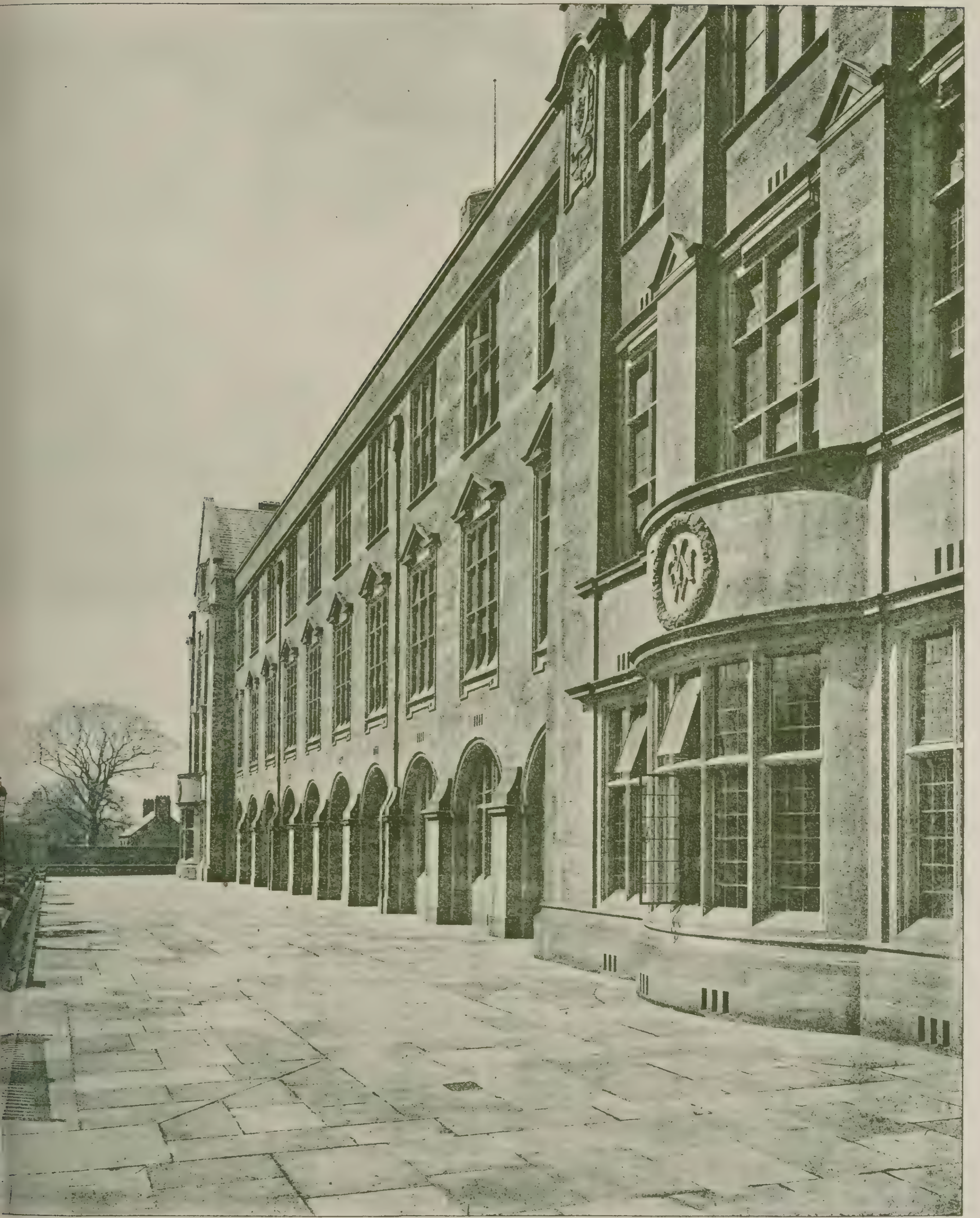
INNER QUAD AND PRICHARD-JONES HALL.

THE UNIVERSITY COLLEGE OF NORTH WALES, BANGOR.

Mr. HENRY T. HARE, F.R.I.B.A., Architect.



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THE TERRACE.

THE UNIVERSITY COLLEGE OF NORTH WALES, BANGOR.

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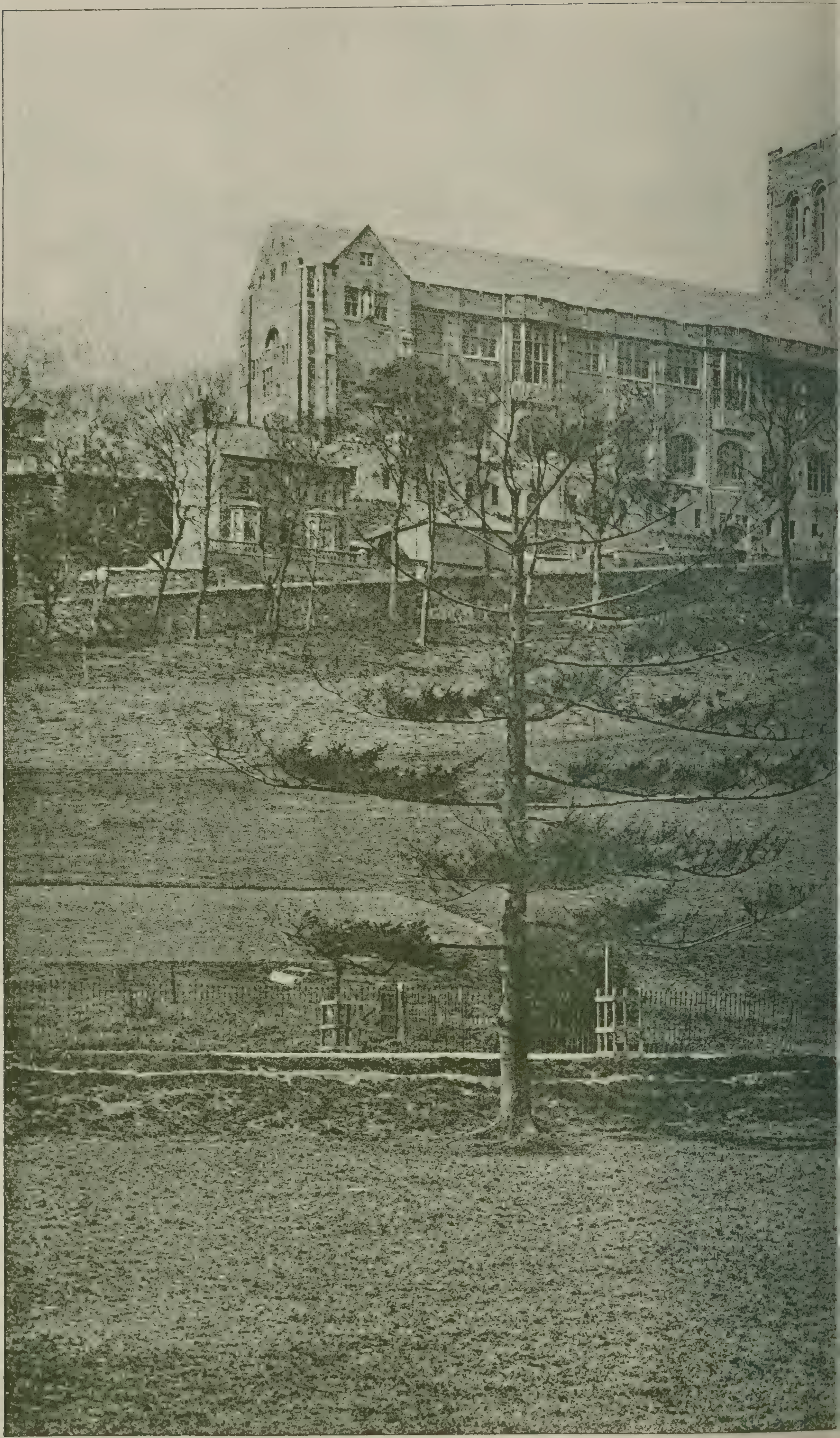

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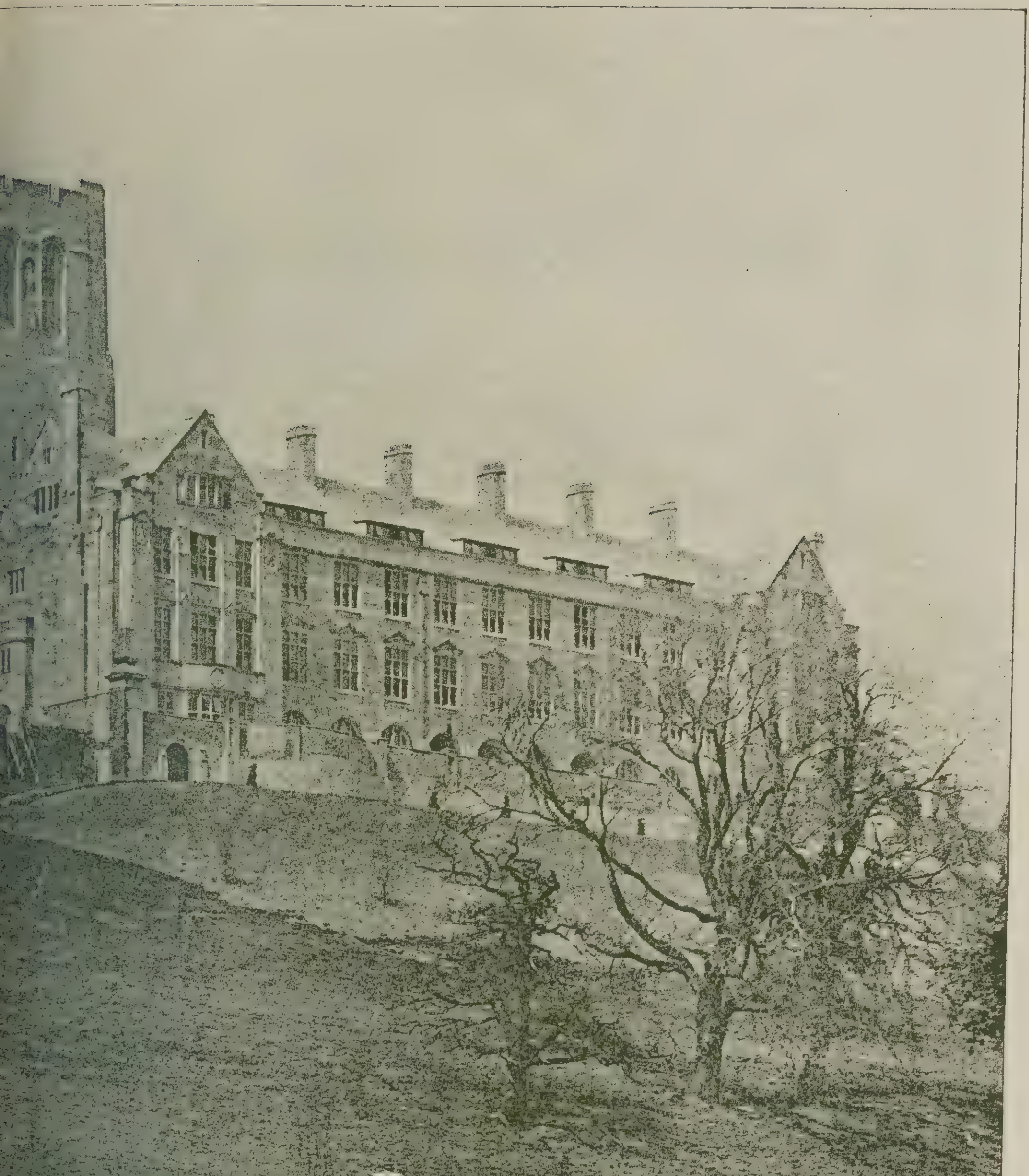
GENERA

THE UNIVERSITY COLLEGE

Mr. HENRY T. HAR



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TH WALES, BANGOR.

Architect.

The Architect.

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FORTHCOMING EVENTS.

Friday, August 11.

Architectural Association : Forty-second Annual Excursion to Tours and Loire Valley (August 11-20).

Tuesday, August 15.

Manchester Society of Architects : Visit to Messrs. Edward Wood & Co.'s Ironworks, Ordsall Hall.

Saturday, August 19.

Manchester Society of Architects : Visit to Chester Cathedral and Eccleston church (the late G. F. Bodley, architect).

Architectural Association : Excursion of Camera, Sketch, and Debate Club to Holland House.

Thursday, August 31.

Guild of Architects' Assistants : Visit to Victoria Palace, Victoria, S.W. (Messrs. Frank Matcham & Co., architects).

COMPETITION DESIGNS FOR DEPTFORD CENTRAL LIBRARY.

THIS may be taken as a competition of experts, for it has been limited to architects selected by the Council of the Metropolitan Borough of Deptford from amongst architects practising in London who have had more or less experience in the designing of libraries. Hence, as might be expected, there are no bad plans, but some are better than others.

The site for the building is at the corner of Lewisham High Road and a side street, Rokeby Road. It has also access to a right-of-way on the end opposite to the principal frontage. The width at the back is considerably less than at the front, the shape of the site being a trapezium, which really formed the only difficulty for an expert library designer, and one that could not be altogether avoided by axial and rectangular planning with an abandonment of awkward corners, as the requirements of space for the various parts, precisely defined in the Instructions to Competitors, made it necessary to utilise all the space available, and even so most of the competitors found it necessary to avail themselves of the qualifying admission that "the measurements given are those which the Libraries Committee consider desirable, but are approximate only."

Sir A. Brumwell Thomas has been placed first and wins the appointment as architect of the work; Messrs. Castle & Warren receive a premium of thirty guineas; and Mr. H. T. Hare a premium of twenty guineas. The Libraries Committee having expressed their opinion against a corner entrance, there remained for the competitors the choice between placing the principal entrance at one end of the principal frontage or somewhere on the side elevation to Rokeby Road. Sir Brumwell Thomas has adopted the former alternative, and his entrance leads to a direct corridor 12 feet wide, on the side of which are his news room and lending department. These rooms are divided into nave and aisles by a series of piers that, carried up through the first floor, maintain the same disposition in the magazine room, reference library, and reference book store, and enable the centre portions of these roofs to be carried higher than their aisles. The staircase to the first floor is well planned, so that whilst itself "of good appearance," as the instructions request, it is economical in corridor and opens direct to the reference library, magazine room, auxiliary room, and librarian's room. Sir Brumwell's design surpasses all its competitors in the simplicity and directness of its structure. It is an organism and not a fortuitous concourse of parts. Hence it is economical and easy in working. All the principal rooms on the first floor are top-lighted only, which, with the nave and aisle structure, makes for simplicity in the external treatment, and the elevations which are to be carried out in brick and stone are dignified without extravagance. There can be no question that in this competition the design placed first is the best.

Messrs. Castle & Warren have adopted a similar position for their principal entrance to that in the first design, but the irregularity of the site has been allowed to manifest itself in the approach and in the public space of the lending department, which, by the way, has been specified by the Libraries Committee to be on the "indicator" system. The staircase in this design is in a more central position, but this leads to a greater development of corridor on the first floor, as well as to an indirectness of approach on the ground floor. In all the plans the general disposition of the principal rooms follows the instructions of the Libraries Committee. The news room and lending department are on the ground floor, the former along the frontage to Lewisham High Road. The magazine room, with an auxiliary room "contiguous, but not connecting," are placed along the frontage to Lewisham High Road on the first floor, on which floor also are the reference library "contiguous to the magazine room" and the reference book store. With the position of these principal rooms practically fixed, and that of the minor rooms generally indicated, the planning of the competitors has been to some extent restricted, almost the only vital point on which judgment could be exercised being the determination of preference between an entrance in the High Road or the side road.

That this determination was not easy is shown by the fact that Mr. H. T. Hare, with all his experience as a competitor and as an assessor of other men's designs, thought it worth while to submit two sets of drawings, one with the entrance in Lewisham High Road, the other as an "alternative," with the entrance in Rokeby Road. Mr. Hare is too busy nowadays for this sort of game, consequently neither design is worthy of his past achievements, and in our opinion the "alternative" is the better plan of the two. It is only a young man with nothing else to do who can give sufficient time and thought to turn out alternative designs in a competition, each showing his best effort, and even then it is exceptional to find that both are in the front rank amongst the designs submitted in any particular instance.

It is one of the cruellest features of our competition system that a man may make an initial error of judgment in the lay-out of his plan and pile up an immense amount of good work on that false basis. Hence we are strongly in favour of the double-barrel type of competition, with the simplest possible expression of idea in the first essay, so that only those competitors who are on the right lines may spend time and thought in the elaboration of their idea. This Deptford Library competition, we admit, is a case that does not bear out our general view. With the whole of the designs before us, we recognise that there was no great superiority in the preference of the main frontage or the side frontage for the principal entrance, and it would have been possible to have evolved the best design with either alternative. As it happens Sir Brumwell Thomas has produced the best design with the main entrance in Lewisham High Road.

Mr. Hare in his primary design follows Sir Brumwell's choice. He has a good and direct approach to his news room and lending department, but there is waste of space in the latter due to the irregularity of the site. His staircase is a miserable affair, and is not, as the instructions request, "of good appearance." Its arrangement leads also to an excess of unremunerative corridor on the first floor. The elevations are not worthy of the author.

Mr. Arnold S. Taylor submits one of the best of the non-premiated designs with an entrance on the main front. His public space at the side of the lending department, tapering from 4 ft. 6 in. to 15 ft., does not comply with the condition this is "to have clear depth of at least 12 ft. outside counter," though as it expands the right way the defect is not so very serious. His main staircase is centrally placed and economical on the first floor, but the approach at the foot is not quite happy. His elevations are fair, but the extensive use of side lights to the first-floor rooms is a handicap in comparison with Sir Brumwell Thomas's design.

Messrs. Newman & Newman adopt the High Road main entrance, but their plan follows the lines of the site too closely. Their elevations are spoilt by side lighting and a multitude of windows.

Mr. Albert L. Guy has arranged his plan somewhat on the lines of the second premiated design, but it is lacking in directness. The front elevation is passable, but the side conveys the idea of three separate buildings.

Messrs. North & Robin place their entrance in the Rokeby Road, but err in making their public space in lending department a corridor to the news room and to the main staircase. Their elevation is too pretentious.

Mr. Maurice B. Adams covers all the irregular space of the site; thus, although the plan is good with directness of approach and economical staircase as in the winning design, the result is a less shapely building. The elevations suffer from the use of side windows on the first floor, although top light is also provided.

Mr. S. B. Russell sends one of the best designs with Rokeby Road for the main entrance, from which there are steps down to the news room. There is economy in corridor and the elevations are symmetrical, dignified, and restrained in red brick and stone.

Messrs. Eedle & Myers have a good entrance from the Lewisham High Road, with an elaborate stair, but the plan is too much cut up with recesses and alcoves.

Messrs. Young & Horsley use the side road for their main entrance, which, with hall, corridor and stair, cuts off completely the news room from the lending department. The back part, containing minor rooms, is very involved, and would necessitate many girders to carry walls over voids. These gentlemen submit an alternative design with entrance in the main road, which we think is better than their primary one, especially in the symmetrical elevations by which it is accompanied.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

We are pleased to welcome some new participants in the work of the Club, as well as some of our old members in the first month of the new yearly series of competitions for our Travelling Studentship. The subject set for July—an external stone staircase or a flight of steps forming an approach to a building, terrace or courtyard—is one that is well worthy of study, the feature being an important one in the design of many buildings and one that receives great consideration in the work of the best architects of the present day.

"Doric" has measured the terrace stairs at Donibristle, Fife, which are the subject of a fine piece of approach planning and have connected with them some interesting and excellent ironwork. Our contributor has measured his subject very carefully and sends a good perspective sketch, but his drawing leaves something to be desired in firmness and quality of line.

Mr. C. S. Carter has fallen back upon the well-known York Water Gate, London, now stranded far from the river to which it was once the approach. The drawings are fairly complete with plan, elevations, section and full-size details.

"Seleth" has drawn a short flight of steps, with adjacent balustrade leading to the terrace at Woodsome Hall, Huddersfield. The work is seventeenth century and of simple but effective design. The drawings are to a good scale, which lessens the necessity for full-size details, of which the execution and design is hardly worthy. The author's perspective sketch is a little inclined to be woolly.

Mr. E. H. Gibson sends measured drawings and perspective sketch of a good flight of steps at Constable Burton, Yorkshire, and in his sketch, which is rather roughly executed, shows the connection with the entrance of the house, to which the steps are an approach. Some full-size details are useful, but the drawing of the many balusters has overtaxed Mr. Gibson's accuracy of line.

We award a prize of one guinea to "Doric" and half a guinea each to "Seleth" and Mr. E. H. Gibson.

THE ROYAL ARCHÆOLOGICAL INSTITUTE.

(Continued from last week.)

Friday, July 28.

To reach Coity Castle and Coity Church the train was taken to Bridgend, and the journey completed by motor.

Coity Castle.

The castle, which is completely in ruins, was built by Payne Turberville early in the twelfth century. It consists of a circular inner ward with a deep ditch all round it and a rectangular outer ward mainly of the thirteenth century. There were at least three gatehouses, that on the east side alone remaining more or less perfect. The building was (as pointed out by Mr. W. H. St. John Hope, M.A.) more in the nature of a fortified house of four storeys than a fortress; so the internal arrangements were dominated by domestic considerations, the military element being represented by strong outer walls. The main living-rooms were, as usual, on the first floor, the basement being given up to cellars, where food could be stored for the winter months, and to menial offices. On the south-west of the inner ward stood the hall. One curious feature of this is its passage and staircase leading to the round garderobe tower projecting from the curtain wall. This is thirteenth century, and the oldest part of the remains. The tower has its sides slightly flattened. Presumably this was done with the object of giving as little protection as possible to anyone attacking at that point. The flat sides were commanded by windows in the main wall, so that anyone creeping round the tower would be exposed to a hail of missiles. The residential portion of the castle would have been very comfortably planned for its period.

Mr. Iltyd Nicholl (who is a local antiquarian with a local knowledge second to none) gave some very interesting particulars of the personal aspect of the buildings. There were, he premised, no epoch-making events of history connected with any of these small "private" castles, as they are called in this part of Wales, in contradistinction to fortresses such as Caerphilly or Cardiff. Smaller castles like Coity formed a continuous chain, and were strongly defended by their owners, who kept in touch with each other in view of any possible rising of the Welsh. The name of Turberville is found in the neighbourhood in the first half of the twelfth century. When Robert Fitzhamon conquered Glamorgan, and parcelled out the land among his followers, the Turberville of that day found himself unprovided for. So he hurried to his leader and demanded what was going to be given to him for his services. Fitzhamon suggestively replied, "Oh, you can look after yourself." Turberville came to Coity, which was owned by a Welsh lord named Morgan, a grandson of the dispossessed native prince. The Norman knight summoned the castle to surrender. Morgan stoutly refused, but hinted that if Turberville would undertake to marry his daughter the gates would be thrown open and he would be received peaceably. This compromise was agreed upon, and for many generations the Turbervilles married exclusively into Welsh families, becoming more Welsh than the Welsh themselves, and taking their part in some of the risings. These latter soon broke out, through the ill-advised attempts of Fitzhamon, who had been raised to the dignity of the Earl of Gloucester, to suppress national customs. In 1094, while the Normans were engaged in the conquest of Gower, Payne Turberville of Coity marched to Cardiff and surprised Fitzhamon in his strong castle. The Turbervilles, however, are generally found fighting side by side with the English in the Scottish and French wars of the next two centuries. The family came to an end in the direct male line about 1350. Coity estate was strictly entailed in succession upon the sons of the four sisters of the last Turberville. The first to inherit was Sir Laurence Berkerolls. Additional fortifications were erected at the time of the Welsh rising under Owen Glyndwr. In 1400 this descendant of the last Welsh prince raised the flag of rebellion, and laid claim to the throne of Wales. After meeting with considerable initial success against the English, he profited by a lull to attack those Welsh chiefs who had stood aloof, among whom was the owner of Coity Castle. The story is that Glyndwr, wishing to obtain knowledge of the fortifications at Coity, obtained admittance to the castle under the guise of a bard, and only revealed himself when, after obtaining all the desired information, he rode away.

The castle was besieged in due time, and a loan was raised in both houses of Parliament for the purpose of effecting the rescue of its owner. This turbulent Welshman died a natural death in 1415 at the house of one of his daughters. The Gamages succeeded the Berkerolls at Coity. The last of this line was a very considerable heiress in the time of Elizabeth, and had several important suitors for her hand. But she was unwilling to regard herself as a pawn, and gave her affections to Robert Sydney, brother to Sir Philip, the favourite of the Virgin Queen. The greatly daring couple were married in the chapel of St. Donat's Castle just before the arrival of Lord Burleigh's messengers, who had come to carry off this eligible *parti*. In the middle of the eighteenth century the estate passed from the Sydneys, who sold their Glamorgan estates to the Wyndhams, though by that time the castle had become more or less dismantled. It now forms part of the Dunraven estate.

Coity Church.

Close to the castle, and behind it, is the small late thirteenth century aisleless church, with a central tower, whose bells rung out a welcome to the visitors. It was built all at one time, with the exception of the top of the tower, which dates from the sixteenth century. The chancel has been recently restored. The nave roof is, according to Mr. Brakspear, the original one, and the stone chancel roof is old, too. On either side of the western arch of the crossing is a small pointed recess, in each of which was placed an altar, and on either side of the eastern arch is a squint giving a view of the high altar. All the lower parts of the walls are battered for about three feet in height of ashlar work; the batter is carried higher in the tower piers. In the north transept are two small stone effigies of the Turbervilles, which Mr. Brakspear considered belonged to heart burials or which covered the graves of two children. In the chancel is a very curious oak chest, on the sides of which are several carved panels decorated with the emblems of the Passion. The panels are unquestionably mediæval, though their framing seems to be of later date. In the south transept stands a sexagonal font of the same date as the church; it has been supplanted for practical use by a modern font in the nave. In the churchyard is the base of a preaching cross. The gargoyles at the four corners of the tower over the crossing are noteworthy productions.

Coychurch.

Less than two miles to the south-east of Coity stands Coychurch. The church, which is the only object of interest in the village, was described by Mr. H. Brakspear, F.S.A., as the most architectural of any of the many small churches included in the programme of the Summer Meeting. It is an exceedingly interesting one. An obvious characteristic of it is the narrowness. It originally consisted of a chancel, two transepts, the central tower, and an aisleless nave. One reason for believing in the absence of aisles is that for some ten feet west of the tower the nave is not arcaded like the rest of its length, but has solid walls. Mr. Brakspear was of opinion that here stood the choir stalls. About the middle of last century the central tower fell down, and in doing so wrecked the chancel. When the rebuilding was begun, funds were, it is said, insufficient to complete the whole scheme. Against the advice of the architect the committee decided to leave work on the tower to a later day. As a consequence of another storm, what was left of the tower fell, and again wrecked the rebuilt chancel. The wooden waggon roof of the nave is of striking beauty, with its adornment of angels and carved bosses, and most especially for the simplicity of its construction. Clerestory windows are on the south side only. They were cut through the wall with but little regard to the centre of the arcade beneath them. These cinquefoil windows make interesting comparison with the curious quartrefoil windows in the west wall of each aisle. In the north transept are two effigies: one is of a layman, and has no inscription; the other is dated 1591, and shows an Elizabethan priest in his surplice. In the churchyard are the remains of two Celtic crosses, viz. a large stump behind the chancel and fragments of a cross on the south side, which became broken in the fall of the tower. There is also a mediæval cross raised on five steps. In the vestry were a few pewter vessels and other plate. It was interesting to hear that at least one of these pieces had been recovered by the present incumbent from among the household goods of his predecessor's wife after her removal. The obvious moral is that an inventory should be made as soon as possible of all property belonging to each church. In the cases elsewhere where this has been done some surprising results have occurred. There is little consolation in the thought that spoliation is usually committed in all innocence.

Ewenny Priory.

The programme said that Ewenny Priory (*vide* plans in Supplement, page 12) was founded in the early part of the twelfth century by the lords of Ogmore, one of whom gave it as a cell to Gloucester Abbey in 1141. It was fortified in the fourteenth century. Colonel J. P. Turberville, the present proprietor, who acted as cicerone, pointed out that the Priory was to be regarded from an entirely different point of view to the other churches on the programme, because it was quite as much a fortress as a church, and the whole plan clearly reflected the state of the country at the time when it was built. Ewenny was situated on an extremely weak line of Norman defence, and within half a dozen miles of it stood about ten castles. There is no exact information as to the early history of the locality, though a tradition exists that a Welsh church dedicated to St. Michael flourished here before the Normans came. This is supported by the discovery of pieces of carving which look like Celtic work. The earliest unquestionable date is 1141, when, as already mentioned, it was handed over to the Benedictine Abbey of Gloucester by William de Londres and his son Maurice. The original deed states it was founded for a prior and ten monks. It remained as a monastery until 1527, and was then leased by the Crown to Sir Edward Carne on the understanding that he was to keep the prior and the two monks remaining as guests. This arrangement apparently proved unsatisfactory, because Sir Edward shortly after bought the Priory outright. Towards the end of the eighteenth century the then lady owner allowed the place to become greatly neglected. Part at least of the church was utilised as a farm shed, and as such it appears in a drawing by Turner. John Carter, the antiquary and architect, writing in the *Gentleman's Magazine* in 1804, after an itinerary in this part of the country, said: "I hailed the sacred walls of this Priory Ewenny and exclaimed, I behold thee in the very moment when thou art about to lose some of thy 'time-revered honours.' Already is your southern boundary falling beneath the mattock; your porches, halls, chambers, galleries are waiting their final overthrow, even while the modern staircases, saloons, and drawing-rooms are rising on their blasted sites. Quick, let me note particulars. . . . To mention the condition of the edifice (the church) would be to combine all the thoughts given way to in the course of these essays on such occasions; let us, however, observe that the roofs in the transepts are falling in, their windows and those of the choir unglazed, and in a manner overgrown with ivy. The apparent neglect in every part, the accumulation of rubbish, and the real gloom around drove me from these ruinous walls, which to me at least imparted many a desponding thought."

About twenty years ago the brother of the present proprietor carried out some much-needed work, and Professor Freeman was called in to advise. The peculiar characteristics of the building have been ably described by Freeman, and we cannot do better than quote his account:—"So far as it exists at all it exists very nearly as it was originally built, and it consequently shows us what a religious edifice, raised by invaders in a half-conquered country, was required to be. When perfect it consisted of a nave with north aisle, choir under tower, presbytery without aisles, but with an arrangement of chapels attached to the transepts. The western limb formed the parish church, the choir the presbytery, and the appendages formed the church of the Priory. The division was made by a solid wall across the western arch of the lantern, acting, of course, at once as the reredos of the parish church and the rood screen of the Priory. . . . The parish church could not be concealed within the monastic enclosure: the parishioners must have free access without passing through the gateway of the monastery; consequently, the whole north side was exposed, while the monastic buildings were attached to the south. The result is that the church itself becomes part of the line of defence, and hence the extent to which it assumes a castellated character."

It will be judged from Professor Freeman's account that the church is full of interest; and the visitor of to-day will not be disappointed. The wooden screen now dividing the presbytery from the space under the tower has fourteenth century tracery with fifteenth century solid panels below. It was removed from the nave, where it served as a fence screen to the altar of the parish church. When the part east of the crossing was reserved exclusively for the monks they would only need an enclosure to the monastic choir, which came almost up to the solid wall, merely leaving sufficient room for processional purposes and for the monks to enter their choir. The former consideration, as Mr. St. John Hope explained, accounted for the existence of every one of the numerous door-openings which puzzle many people. The stone rood screen and reredos combined is one of the few existing instances of such a feature in monastic churches; other places where it occurs are Boxgrove, St. Albans, Tynemouth, and Crowland. The south transept contains several old tombs, amongst them being that of "Morice de Lundres le fundur," which is in an extraordinary (and suspicious) state of preservation after seven centuries. Another is an imposing mid-seventeenth century tomb, and there are also slabs showing early and pre-Norman workmanship. High up in the west wall of this transept is a delightful arcade of seven small round arches cut in the passage to the central tower. The nave was shortened westward by fifteen feet over a hundred years back, and the north aisle was rebuilt about fifteen years ago. There never had been an aisle on the south side, as the cloister came up to this part of the church and down the west wall of the adjoining transept.

The house itself is conspicuous for its lack of external interest. The greater part shows a typical early nineteenth century front in stucco, although it incorporates thirteenth century fragments. The precinct walls remain for the most part (with the single exception of the south wall), as well as the square towers at each angle and the two strong gates on the north side, which was of old the principal front. It was on this side that the danger ever threatened from marauding excursions by the wild Welsh, who could pour down from the hills, which were within an easy night's march. The extreme length of the fortifications is 190 yards, and their greatest breadth 130 yards. They enclosed an area of nearly five acres.

Without breaking the laws of guesthood, we may be permitted to endorse the remarks Mr. St. John Hope took occasion to make concerning the prevalence of ivy, which, vampire-like, clings to the time-honoured walls. Colonel Turberville is obviously a man keenly aware of his responsibilities as the owner of such an historic place. He has already done much, but more remains behind. For, as Mr. Hope aptly said, there is only one Ewenny Priory, and there is ivy in abundance elsewhere.

The visit concluded with tea in the Priory grounds, and the return to Cardiff was made by motor-car and train. At the subsequent evening meeting Mr. W. H. St. John Hope gave an entertaining account of the excavations in progress at Old Sarum, which he has been superintending for several months. By means of lantern views he gave an excellent idea of the way in which this site was treated and of the considerable progress made in uncovering the deeply-buried foundations of a Norman stronghold.

Saturday, July 29.

Margam Abbey.

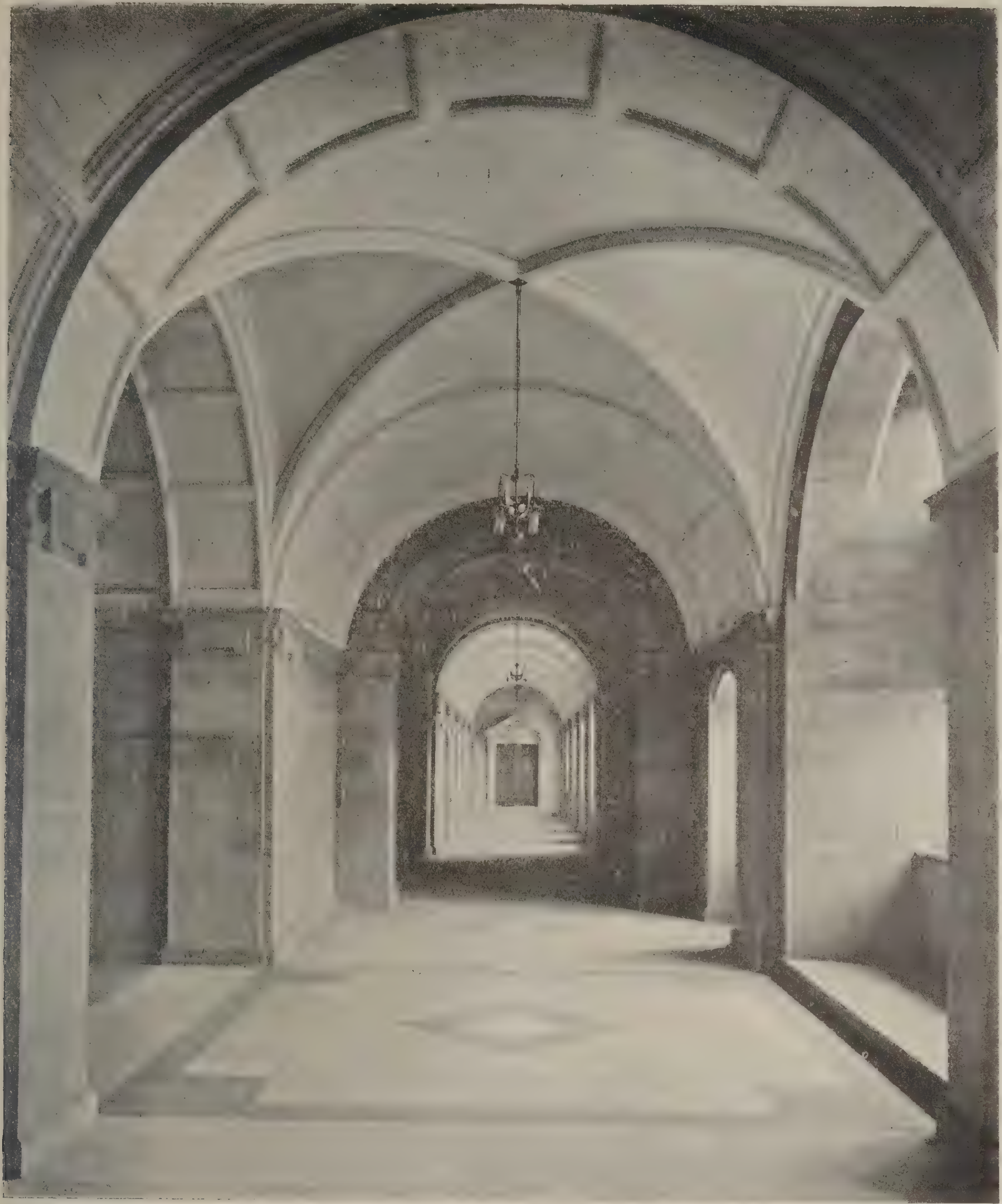
The Cistercians, or Bernardines, were transplanted into England from the abbey of Aumone in Normandy in 1128 by Walter Giffard, bishop of Winchester, who established them in his newly-founded monastery at Waverley, in Surrey. Within twenty years they had reached South Wales, and established themselves at Margam. Tanner (in his *Notitia Monastica*) and Dugdale ascribe its foundation to Robert, Earl of Gloucester, natural son to King Henry I., and date its foundation A.D. 1147. It is also occasionally ascribed to Morgan, a Welsh lord, contemporary with Earl Robert. It is stated that the beginning of Margam was near Pontypridd, at Pinder, where a hermit, Meiler, obtained a grant of land for a Cistercian abbey. Possibly this may account for the subsequent confusion. The Earl of Gloucester granted to the monks of Clairvaux all the land between the Kenfig and Aven streams for founding an abbey. Before the Norman Conquest there used to be a religious establishment in the neighbourhood; but the present buildings, though of great historical interest, have nothing to do with that. In 1224 the abbey was attacked by the Welsh, but there is no record of any damage having been done. About that time, said Mr. Harold Brakspear in his description of the buildings, a number of small Cistercian houses in Ireland got into low water, and applied to their mother-house at Mellifont for aid. Owing to their poverty the mother-house could do nothing. At least one of the Irish houses was at once handed over to Margam to keep going, and three others followed. In 1326 the abbot appealed against the general taxation, on the ground that his house was a poor one, as he had to support thirty-eight monks and forty conversi. The yearly revenue of the community at its suppression was £188 14*s.* gross, or £181 7*s.* 4*d.* clear. The site was granted to Sir Rice Mansell, for which he paid £936 6*s.* 8*d.*; Miss Talbot, the present owner, is a direct descendant of his. The nave of the church, of the date of the foundation, remains, and is still used as a parochial church. This, said Mr. Brakspear, is the only Cistercian church which has round arches in the nave instead of pointed ones, and the fact is especially noteworthy because the Cistercians introduced pointed arches. In the thirteenth century the church, which up to then was the usual type of aisleless presbytery, was lengthened eastwards. The east end of the south aisle contains four beautiful alabaster tombs, which were apparently executed all at one time and in the same place. They begin with Sir Rice Mansell and his wife, whose figures are on top, while their children are carved in high relief round the base. The three other monuments commemorate the successive holders of the property. The interior is extremely spacious and imposing.

A conspicuous feature of the monastic ruins is the chapter-house. Of this an enthusiastic archæologist wrote many years ago: "If ever truth in architectural design, proportion, or symmetry of parts were made evident, where not anything is too profusely charged or too simply set forth, here most assuredly stands a model of all that is desirable in the noble science." This high praise seems justified by the building itself and by the charming vaulted passage leading to it. About 1800 the vaulting of the chapter-house collapsed through neglect. A traveller, writing in 1799, says: "It concerned us to see the beautiful circular chapter-house in a state of dilapidation that must speedily reduce it to a heap of ruins. Great part of the roof has fallen in, the ribs which support the remaining portion are giving way, and no care seems to be taken to repair what is already dilapidated or to prevent further injuries." His fears were all too quickly realised. Behind the abbot's seat is a curious quatrefoil opening. The chapter-house has pointed window heads, and in plan is circular within and twelve-sided on its outer face. Close by is an inscribed ancient cross which, with the numerous others in the church itself and elsewhere, make a visit to Margam as interesting to the archæologist as to the architect.

In the grounds is a long building or orangery. The story is that some two or three centuries ago the royal house of Spain, exchanging courtesies with the English royal house, despatched a cargo of orange trees to this country. The vessel, however, got wrecked off the rocky coast of Wales, and the trees were conveyed to Margam for temporary safe guarding. But they never left the abbey. At present the orangery is empty, if we except the tables well laden with wine and cake and other refreshment which were awaiting the party.

Neath Abbey.

John Carter in 1804, like the Royal Archæological Institute, passed from Margam Abbey to Neath Abbey, and he wrote: "A clear and ambient air I leave; and pestilential vapours and noxious mists now assail me as I forward march and see the town of Neath, dark and sulphurous." Arriving at Neath, he thus pours forth his outraged feelings:—"Ye powers! how horrid, how infernal was all before me! Deep in the very centre of the sacred walls were set the furnaces wherein the poisonous ore becomes a prey to fusion. What dreadful crash of mighty engines! What oaths, what im-



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precations! With flames and smoke the scene was filled, the sad prototype of that place of outer darkness which the wicked alone must know. A bell is tolled, and see, the brotherhood comes forth. Their vestments are sable, it is true, their visages pale and wan, but not through the austerities of religious observances, as of the old sojourners in this devoted ground, but through the rage of heat, metallic effluvia and ungovernable inebriety. Standing within the verge of the grand gateway to the abbey, an absolute ruin, alike bearing the marks of pestiferous exhalations, I found it impossible to approach the abbey." Things have improved since that was written a century ago. Nevertheless, the setting of Neath Abbey is a poor one for such a jewel, and must forbid assent to the Elizabethan's cry that it was the fairest abbey in all Wales. The furnaces are gone, but on the circumference of the precincts remain black mounds of débris.

The abbey was founded, according to Mr. H. Brakspear, in 1129 or 1130 (*vide* plans in Supplement, p. 13) by Sir Richard Granville, for twelve Savignian monks and an abbot. This reformed Benedictine order was established by Vitalis, a Norman, after many vicissitudes at Savigny, in Avranches, in 1112; they founded thirteen houses in England and Wales, one of the earliest being this at Neath. The monks were so closely related to the Cistercians that in 1143 the fourth abbot handed over his abbey and those dependent on it to them. All that remains of the buildings is Cistercian work. The reasons for none of the original buildings remaining are that these were of very small size, and as the Order took on very rapidly in the neighbourhood they had to provide greater accommodation, and also that in 1224 Morgan ap Owen burnt the abbey. There is no work standing earlier than the thirteenth century. The buildings were still in progress in 1289, for in that year Gilbert de Clare, Earl of Gloucester, granted all the timber for the new work. In 1326 Edward II. took sanctuary at Neath for ten days after his escape from Caerphilly Castle, pursued by Queen Isabella and the barons. It was not a rich house, for in 1534 the gross revenue was returned at £150 4*s.* 9*d.* At the suppression, it ought to have been given up at once, but by paying a fine of £150 in 1537 they were allowed to continue for a further two years. In 1539 there were only eight monks left, and it was converted into a manor house by Sir Robert Williams, *alias* Cromwell, nephew of Thomas Cromwell, and trusted minister of Henry VIII. Great alterations were carried out to the buildings by Sir Peter Hoby in the middle of the seventeenth century to convert them into a more convenient mansion.

As in all monastic buildings, as Mr. Brakspear remarked, the cloister was the centre of everything. The ruins of the church show late thirteenth century work. It was a very blunt-proportioned building. A curious feature about it is the porch at the west end, which, according to precedent, ought to have gone right across the nave and aisles. The church was vaulted in its main span, as well as in its aisles. About fifty years ago the eastern end was excavated, and a number of fine tiles were brought to light; some of these are now in the Swansea Museum. The plan we give this week shows the arrangement of the building.

As a contrast to Carter's depressing accounts we may conclude with this description by Lewis Morganwg, the famous Welsh bard:—"Like the sky of the vale of Ebron is the covering of this monastery; weighty is the lead that roofs this abode—the dark blue canopy of the dwellings of the godly. Every colour is seen in the crystal windows; every fair and high wrought form beams forth through them like the rays of the sun. Portals of radiant guardians! Pure and empyreal, here is every dignified language and every well-skilled preceptor. Here are seen the graceful robes of prelates, here may be found gold and jewels, the tribute of the wealthy. Here also is the gold-adorned choir, the nave, the gilded tabernacle-work, the pinnacles worthy of the Three Fountains. Distinctly may be seen on glass, imperial arms, a ceiling resplendent with kingly bearings, and on the surrounding border the shields of princes; the arms of Neath of a hundred ages; there is the white freestone and the arms of the best men under the crown of Harry; and the church walls of grey marble. The vast and lofty roof is like the heavens on high, above are seen archangels' forms; the floor beneath is for the people of earth, all the tribes of Babel, for them it is wrought of variegated stone. The bells, the benedictions, and the peaceful songs of praise proclaim the frequent thanksgiving of the White Monks."

(To be continued.)

THE STATUS OF ENGINEERS AND SURVEYORS.

MR. P. C. COWAN (Chief Engineering Inspector, Local Government Board for Ireland), in opening the proceedings at the Conference of Engineers and Surveyors to Local Authorities at the Royal Sanitary Institute Congress, said that the first of these special conferences was held at Portsmouth in 1892, under the presidency of Mr. H. Percy Boulnois, who was now the chairman of the Council of the Royal Sanitary Institute. He then presented a most interesting chart, setting out the duties of the municipal engineer under ninety-eight sub-divisions, grouped under the main headings of engineering, land surveying, architecture, administration, and miscellaneous. He would not pause to consider the additions to this chart, which might be made on account of the numerous Public Health and Sanitary Acts which had been placed on the statute book since 1892. A glance at the chart showed how great and varied were the demands made upon the abilities and energies of engineers and surveyors to local authorities, and the extent to which the health, convenience and well-being of the community depended on the efficiency with which those demands were met. The value of the services of county and municipal engineers was not yet sufficiently appreciated, and, as a rule, they were underpaid. County surveyors in Ireland appointed before 1898 enjoyed the advantages of a salary regulated by the Schedule to an Act of Parliament and a tenure of office which could only be disturbed with the sanction of Government. The scheduled rates of salary were moderate and could not be increased. This was, of course, in some way objectionable, but the net result was that a competent and faithful county surveyor had no cause to dread loss of office, and no temptation to shirk unpleasant duty, the performance of which might for a time give offence. The Local Government (Ireland) Act, 1898, maintained the examination for the appointment of county surveyors, which had existed since 1833 and the security of tenure of office, but the schedule of salaries had disappeared. Since 1898 a number of appointments had been made to the position of county surveyor and assistant county surveyor at salaries markedly below those considered reasonable and necessary many years ago when duties and expenses were less than they were now. In some respects the law in force in Ireland was more favourable to engineers and surveyors than the corresponding statutes in the sister island. County surveyors, assistant county surveyors, and practically all town surveyors, as well as sanitary officers, had security of tenure in this country and could only be removed from office with the consent of the Local Government Board. This provision had proved very beneficial in his opinion, and though now and then a tactless officer might presume too far on the protection the law affords him, the control of the authorities over their servants was not unduly affected. It was only right to say that Irish local authorities were most invariably considerate and lenient towards their officials, and that nowhere were firmness and impartiality more appreciated than in this country. The Irish were a quick-witted race, and they had an absolute contempt for an official who "wobbled" or was uncertain in the discharge of his duty. The absence of provisions in the statutes to prevent incompetent persons from acting as engineers or architects was much to be regretted, and doubtless accounted to some extent for the low estimate often put on the services of engineers and architects. It was most desirable in every proper interest—and especially in that of the ratepayers—that the law should be amended so that at least all public works should be designed and supervised by persons possessing at least such minimum qualifications as might be prescribed by the central authority sanctioning the works or expenditure. It would evidently be a great step in advance if a more efficient and economical expenditure of public funds on works were thus ensured, though some private individuals might continue as at present to consider the service of all professing engineers and architects as equal in value, and to employ these practitioners who asked least for their services without consideration of the large percentages which were commonly saved or wasted by good or bad design and supervision. This was a matter which could be more easily dealt with than the wider question of the registration of civil engineers or architects, and he was glad to say that the thin end of the wedge had been inserted by the provisions of the Labourers (Ireland) Act of 1906, section 27 of which said "Every person whom a district council propose to employ as architect, engineer, surveyor or clerk of works, for the purposes of the Labourers Acts, shall satisfy the Local Government Board that he has sufficient knowledge and experience for such employment." The Act empowered the Local Government Board to make rules and regulations, and a General Order of 1906 stated who should be deemed eligible for employment as architect, engineer or surveyor.

This new departure in legislation would, he hoped, be a fruitful precedent for further legislation to protect the public from the blundering of incapable self-styled architects and engineers. Now that there were numerous well-equipped engineering schools attached to the universities, there was no good reason why some protection should not be afforded to the profession. Every year between thirty and forty young men took degrees in engineering in the three Irish Universities, Trinity College, Dublin, the National University, and Queen's University, Belfast, and the courses for the degree are excellently framed to fit the graduates for successful professional work. As an example of the practical training now obtainable in the Irish Universities, he would mention that the designs for large reinforced concrete floors for building extensions at University College, Cork, and for a new bridge of the same materials crossing the Lee, were lately worked out in the Engineering School, and that the materials for the very important new bridge over the Suir at Waterford were tested in the laboratory of the same school. He ventured to think that the time was now opportune for legislation which would protect engineers and architects from unfair competition, and the public from the very serious loss which now arose from their displacement by practitioners who were not qualified. There was now a sufficient supply of properly trained men, and no good reason why the safeguards afforded to the practice of law and medicine should not be extended to those whose function is "the art of directing the great sources of power in Nature for the use and convenience of man." If the Institutions of Civil Engineers, the corresponding architectural associations, and the Universities were to combine in an effort to secure proper recognition of the professions of engineering and architecture, success would ere long be obtained.

ILLUSTRATIONS.

UNIVERSITY COLLEGE OF NORTH WALES, BANGOR.

WE this week complete our series of illustrations of these buildings, of which Mr. Henry T. Hare, F.R.I.B.A., is the architect.

CATHEDRAL SERIES: ELY.—NAVE LOOKING WESTWARD—SOUTH NAVE AISLE LOOKING EASTWARD.

WE continue our series of views of Ely Cathedral with these illustrations this week.

NEATH ABBEY.

RECENT EXCAVATIONS AT CAERLEON (ISCA SILURUM) AND CAERWENT (VENTA SILURUM).

THESE two important Roman sites are situated in South Monmouthshire, the former three miles north of Newport, and the latter eleven miles to the east of that town. They are both of the same area and shape, but Caerleon was the fortress of the second legion and Caerwent was a civil town.

Excavation proves that Caerleon was founded in the reign of Vespasian about the year 78 A.D., and that from that time to the latest period of the Roman occupation it was an important centre. Caerwent, on the other hand, was first of all a temporary camp on the line of march westwards, and later, towards the middle of the second century, developed into the city we know it to have been.

So far little excavation has been done at Caerleon, but that little gives promise of interesting finds when the whole of the work is completed. By the kind permission of Sir Arthur Mackworth, Bart., we were able to explore the south angle of the fortress within the Priory grounds, and here the early earthwork, angle tower and other walls came to light. A trial excavation was also made in the amphitheatre, or King Arthur's Round Table, as it is called. Quite unexpectedly it was discovered that here had stood what was probably the finest amphitheatre in Britain. The outer wall is 5 feet 6 inches in thickness, and has buttresses inside and out, and we were able to open out part of the south gate and inner or arena wall, into which was built a centurial stone, recording the fact that that portion of the wall was built by the third cohort of the legion.

It is of great importance that the excavation of Caerleon should be proceeded with as speedily as possible, as it is the only great military fortress in Britain which can be explored to any extent, York and Chester being the sites of two important modern cities as well as Roman fortresses.

About one-third the area within the walls is at present available, but some of this land is up to let for building purposes, and there is great danger of the small area now open to spade work being greatly reduced. Outside the walls the amphitheatre, baths, cemetery all await the hand of the excavator.

Caerwent has been the scene of careful scientific excavation for the last twelve years, and some twenty-five out of the forty acres within the walls have been explored.

Sufficient has been done to accurately plan the streets as well as most of the public and other buildings in the city. The site of the public baths has been identified, but so far it has not been possible to obtain permission to excavate them. Outside the city the cemetery and two or three Roman villas still remain to be examined.

The basilica with the forum to the south of it, a temple, a small and probably incomplete amphitheatre, besides some forty dwelling houses, shops, and workshops, have been uncovered, and detailed plans of all have been made.

The streets of the city were well laid and drained, the houses were well planned, and the sanitary arrangements were on the whole good; in fact, much better than often at present obtain in some of our modern country towns and villages. Water was obtained from wells, of which about twenty have been cleaned out, and from a service of wooden pipes laid in the streets. These pipes occasionally burst, and were repaired with pieces of sheet lead nailed down over the break.

The city walls and the buildings were well built of the local limestone, and the quoins and large moulded and ornamental blocks were of the soft yellow sandstone which is found on the banks of the Severn at Portskewett, or of the easily worked freestone from Dundry, near Bristol.

The roofs were covered with old red sandstone tiles, which were fixed with iron nails, and the ridge pieces and ornamental finials were of Dundry stone.

It is impossible here to describe all the pottery and small iron and bronze objects that have been found, all of which can be inspected in the museum at Caerwent, which will well repay a visit.

ROYAL SANITARY INSTITUTE.

AT the Royal Sanitary Institute Congress at Belfast on July 28, Mr. H. D. Searles-Wood, F.R.I.B.A., read a paper on the "Influence of Building Regulations on Architecture":—

The earliest building regulations are found in the laws of Khammurabi. They are over 4,000 years old, and are as follows:—

ccxxviii. If a builder build a house for a man and complete it, he shall pay two shekels of silver for each sar of surface.

ccxxix. If a builder build a house for a man and has not made his work strong, and the house has fallen in and killed the owner of the house, then that builder shall be put to death.

ccxxx. If it kill the son of the owner of the house, the son of that builder they shall kill.

ccxxxi. If it kill the slave of the owner of the house, a slave equivalent to that slave to the owner of the house he shall give.

ccxxxii. If the property of the owner of the house it destroys, whatsoever it destroys he shall make good, and as regards the house he built and it fell, with his own property he shall rebuild the ruined house.

ccxxxiii. If he build a house for a man and did not set his work, and the walls topple over, that builder from his own money shall make that wall strong.

These Babylonian laws were based on the *jus talionis* principle. A life for a life, an eye for an eye, a tooth for a tooth was the natural law of life, and it is found in all communities.

I think, therefore, I am justified in saying that the first designer of the pyramids had these laws in his mind, and he was not going to take any chances. You see under this code the builder's family were very directly interested in the stability of the work, and it must have required an heroic effort to introduce a new feature that had the slightest appearance of disturbing the repose of the structure. Buttresses were popular, as may be supposed, and recessed panels. These early people used hollow walls to keep the rooms in their dwelling-houses dry and cool, built staircases, and, although it is not quite germane to this subject, it is interesting to note that the bricks they used were made to a standard size, ranging from $8\frac{3}{4}$ by $5\frac{5}{8}$ by $2\frac{1}{4}$ inches to 9.6 by 4.9 by 3 inches. When we were working out the Royal Institute of British Architects standard size for bricks these were considered, and our standard size, $8\frac{7}{8}$ by $4\frac{5}{16}$ by $2\frac{5}{8}$ inches to 9 by $4\frac{3}{8}$ by $2\frac{11}{16}$ inches, is, as you see, very nearly the same. What this really means is that the handiest size for a Babylonian bricklayer to handle all day long was the same as the British bricklayer finds the easiest to handle to-day.

The XII. tables of Roman law contained several building regulations, and as they were drawn up by a commission that collected statute laws from Greece and other foreign countries, they may be taken as the standard for the period. Only fragments of them are known, and they chiefly relate to easements such as you were not allowed to have, dripping eaves, &c., and they do not appear to have made much mark on Roman architecture.

In mediæval England the domestic houses were built on traditional lines, but how far these traditions were regulated by by-laws I cannot say. The overhang, which is a common feature, and which was first used in town houses to protect the goods exposed on stall boards, and afterwards copied in the country, where there was no likelihood of the houses having stall boards; this overhang was regulated by by-laws, so that the projection should not interfere with people riding through the streets on horseback.

In modern building regulations three things are considered—first, the prevention of the spread of fire; second, the construction of the building to guard the safety of the public; and third, public health.

It is the regulations that deal with the prevention of the spread of fire that have had the greatest influence on the architecture of the period.

The regulations passed after the great fire of London set the fashion for brick and stone-fronted buildings which altered the appearance of all the towns in the kingdom, and in more recent times the Metropolitan Building Act, which was the first set of building regulations that seriously dealt with the problem of the prevention of the spread of fire, made marked changes in the architecture of the nineteenth century. The $4\frac{1}{2}$-inch reveal to all windows and doors, and the restrictions as to barge-boards and wooden cornices and the parapets to the party walls, are the marks of this set of regulations.

The rules laid down in the Metropolitan Building Act of 1854 for dealing with the rights of the building and adjoining owner of a party wall have worked so well that it is surprising no other city or town has adopted the same system.

This method of dealing with a difficult situation is really a good help to architecture, and some such system should be part of the statute law. At present the law on the subject is that the party structure is common to the two parties, the building and the adjoining owner's, and it cannot be touched without the assent of both parties, and there is no means of compelling this consent. It is in this respect that the London practice has such great advantages.

There is a tendency nowadays to complain that the model by-laws are too severe, and that they prevent the building of cheap cottages and elementary schools. At the first exhibition of cheap cottages at Letchworth, the cottage that won the first prize was in accordance with the model by-laws in every particular. In going round the numerous Garden City developments, the only two things in the by-laws that appeared to increase the cost were the height of the bedroom storeys, where 9 feet is insisted on, and the height of the studded walls, which is also regulated by this by-law. In places where the storey is 8 feet the available area is also increased, and there does not appear to be any serious sanitary point in requiring 9 feet storeys.

The Building Acts and model by-laws are all based on brick construction; the introduction of skeleton steel construction and reinforced concrete necessitates some changes in these Acts and by-laws.

The Royal Institute of British Architects have just issued a second edition of the Regulations for Reinforced Concrete Construction, which are the standard for such method of building in the British Empire. This revised edition will be the basis of the Regulations about to be issued by the London County Council, and will be dealt with very much on the lines of their Regulations for Skeleton Steel Construction, which are in their Act of 1909. The principle is that the calculations on which the steel construction has been designed are submitted, with the drawings, to the district surveyor, who checks the calculations before the plans are approved. These calculations can be made in any form that is recognised by the profession; but a good method of tabulating the calculations has been drawn up by the District Surveyors' Association and approved by the Royal Institute of British Architects, and it is a great saving of time and labour if the information is given by the architect to the district surveyor in this form.

The Regulations for Reinforced Concrete give the tests to be applied in selecting the materials and the methods of calculating the various parts of the building, the method of mixing the materials, and the precautions that have to be taken in preparing the centring and carrying out the work.

Some people are of the opinion that the time has come when there should be a general Building Act for the whole country; let us hope if this comes to pass that it may be so drawn as not to stereotype existing methods of construction, but stimulate new and better methods than at present. It might be a good thing to encourage architects to work out the strains and stresses in their structures by making a law that the methods of calculating the designs should be submitted to the District Surveyor, and if found correct the construction should be allowed, and thus do away with all those cast-iron schedules and rules that so often hamper an original design.

It may be said that these are matters which do not directly influence architecture, but with the introduction of new materials and methods of construction, new means of expression must be found. It is true that over 4,000 years ago men were using the same materials as are now commonly in use, but during that time what varied expression has been given to the use of these materials. Each succeeding race has written its history in monumental works that are our most cherished possessions, and we in our time must strive to leave behind us some monuments worthy of the age in which we live.

Mr. John Slater said they might congratulate themselves as architects that the stringent laws which existed in Khammurabi's time did not exist now, or he was afraid the profession would not have many people come into it. The author had referred to mediæval regulations and talked about the construction of overhanging eaves, but there was one very curious thing he had not alluded to. They were required to have overhanging eaves at the side of the building in a great many places, and the same thing applied to the building next door. It was required by the old regulations that a certain space should be left between the side wall of one house and the side wall of another, so that instead of a party wall they had a party open space, and this had remained in some cases until now. "Twichel" was the expression used for the space between the buildings. He had often asked architects what a "twichel" was, and no one knew. The title of the author's paper was "The influence of building regulations on architecture," but as to what the influence was he had been rather reticent. He could not help thinking that it might be either extremely bad or extremely good. If they had building regulations too hampering or restrictive, they would damage architecture exceedingly. He always thought that it was a mistake to make building regulations too exacting and definite. Even if they did their utmost they would never be able to provide in any regulations for all cases which arose, and he was sure the best plan was to lay down general rules which should be followed, leaving a certain amount to the discretion of those who had to carry out the regulations. It was said that this was all very well in the case of an architect of reputation and experience who was putting up a building, but that for the speculative builder definite regulations were required. They would still find that when they put down any building regulations as a minimum they would always be taken by the builder as the maximum, and there were many cases where the by-laws were complied with by the builder, and yet the result was a very inferior thing. The author had referred to the regulations for dealing with the rights of party owners, and there was no doubt in many cases that these regulations saved an enormous amount of trouble and litigation. Copies of the particulars which it was suggested they should fill in for steel construction had been shown them, but he personally did not think it was necessary to have these minute regulations. They had no doubt to be very careful with steel construction, but to go into the minute details as suggested to him seemed to be straining the Act.

Mr. Brodie (Borough Engineer, Blackpool) said that he would welcome anything which would simplify the laborious duty of specifying by-laws, for often it happened that in the most carefully drawn-up building by-laws, points which arose were not covered. For any new Building Act to come up for the whole of Great Britain and Ireland which laid down minutely what ought to be done would be a great mistake. General principles covering the safety of the structure and also the health of the people who had to occupy the buildings was all they could attempt, whether it be a dwelling house or a large meeting place or a warehouse. He thought it was the only safe course which could be taken so long as they had these general principles embodied and the utmost liberty and discretion given to those who had to administer the Act. It would be a great mistake to have a whole lot of tabulated statements that this and that should have a certain strength and so on. That would have to be left to the judgment of the architect responsible for the building and the common sense of the authority and their officers who had to see that the Act was administered in an honest, straightforward manner.

Mr. E. T. Hall said that the subject brought up by the author was one of very great importance. He thought they would prevent experiments in new forms of building if they were going to lay down cast-iron rules; and they would render it very difficult for the architect who had got some new method of expressing himself by stereotyping rules and regulations to give effect to that. The greatest objection he had ever heard to the present system was that if they left it to the discretion of those who were carrying out the Act they were leaving it to an unknown quantity. The great majority of the men who had the final carrying out of the Act were men of great common sense and great experience, but it was within the knowledge of everybody that they occasionally came across men who were not gifted with common sense and who had not the training, and these men were troublesome and obstructive. Because of such men as these many persons had sought refuge in having strict regulations laid down. He had had experience of one or two such men, and would confess that it was a great trial to the flesh. But he must say that on the whole 98 per cent. of the surveyors to local authorities who administered the by-laws were sensible and considerate in dealing with them. With the author he felt that it would be a great blessing if they could get rid of the costly litigation and obstruction and confusion which arose from light and air cases. They had the Dean of Guild Court in Scotland before whom such matters were settled. The Royal Institute of British Architects drew up a Bill to get rid of light and air disputes, but when the decision in the Colls case was given in the House of Lords it was felt that the present law was quite sufficient. The decision in that case was a common sense one, but he was sorry to say that since then there had been several decisions which appeared to have been arrived at without any reference whatever to the decision in the Colls case. Personally, it seemed to him an iniquitous thing that a man should acquire a right against his neighbour simply because the neighbour had delayed building on his land, for it often happened that the delay was due to the wish of the owner to consider the amenities of a district. He did not see why light and air cases could not be dealt with in the same way as were party-wall cases under the London Building Act. In case of dispute power was given to the building owner to appoint a surveyor and to the adjoining owner to appoint another surveyor. These two selected a third surveyor, and a decision arrived at by two of the three was binding in law, subject, of course, to certain rights of appeal. The Tribunal of Appeal under the London Building Act was another body which could very properly deal with such matters. That was a body consisting of a barrister, an architect, and a surveyor, and their decisions were based on common sense. He suggested to Mr. Slater that possibly the word "twichel" might be derived from "twi-chemel."

Mr. Slater remarked that he did not think that was so.

Mr. Cutler (City Surveyor, Belfast) said the ordinary staff of the City Surveyor would have to be supplemented if there was going to be a large progress in steel and ferro-concrete construction. His opinion was that the more cast-iron the building by-laws were as applied to ordinary construction the better it was, and he could not agree that those by-laws had any prejudicial effect on architectural practice. It had always to be remembered that the buildings in any town were not in the main put up for architectural beauty. They might regret it, but still it was the fact, and building by-laws were absolutely essential. Whilst he could understand the architect's view, yet the local authority had to deal with the jerry-builder and with the man who wanted to supervise work himself even without a builder, and in all such cases the more cast-iron the by-laws were the better. The building by-laws were also of great assistance in cases where an applicant whose plans were disapproved tried to get round the back of the surveyor, for they gave the Committee the chance to stand firm. They had no by-laws in Belfast to deal with ferro-concrete structures, but they had endeavoured to use discretion in regard to such buildings and had relaxed some of the rules which applied to brick and stone buildings so as to meet different cases in a reasonable way. His opinion was that where a reasonable body of business men conducted municipal work, architects had no cause to be afraid of by-laws.

Mr. Lacey (Oswestry) also expressed the view that building by-laws had no prejudicial effect on architectural practice, and in regard to ordinary brick and stone buildings he did not think they were in any way too severe; in fact, in regard to air space and other matters they were below what the minimum ought to be. He agreed generally with what had been said as to ferro-concrete structures.

Mr. W. H. Whyatt (Grimsby) considered that the by-laws were not too severe for London, but thought that there might be some modifications in the provinces, where the buildings, as a rule, were not so high. The quality of the bricks used in the provinces was much better than those used in London, and he believed they could carry a 9-inch wall up 10 feet higher in the provinces with safety. There was also no necessity of carrying the party wall through to the roof in the country, which was an expensive matter. He considered it was a mistake to give officials any discretion with respect to the enforcement of by-laws, because if they relaxed one rule everybody at once knew it and made applications for some relaxation in other directions.

Sir Henry Tanner (H.M. Office of Works) said that practically he carried out his buildings free from building by-laws, and he was in favour of latitude as far as possible in all by-laws. In the case of reinforced concrete he did not see how it was possible to draw up any code of rules which would cover everything which might arise, and he would prefer that each case should be dealt with on its merits. Whilst it was a simple matter to design a beam or a column single, yet when they came to connect the whole thing together practical experience came in, and it was here that the specialists in ferro-concrete construction got an advantage. Seeing, however, the price at which buildings could be erected in ferro-concrete, it was a form of construction which was bound to grow. The Government did come under the London Building Act in regard to the provisions made for the settlement of party wall disputes, and in this connection he thought there was too long a time spent over the matter, and that the third surveyor should be given greater authority to come to a decision quickly.

Mr. P. C. Cowan (Irish Local Government Board), who said it had fallen to him to revise the building by-laws for Ireland, had a strong opinion that the by-laws of Ireland could have no prejudicial effect whatever on architectural practice, whilst he was equally certain that it would be a great mistake if they were relaxed in the case of ordinary common buildings. In the case of ferro-concrete buildings he thought they could have the plans submitted with the calculations for the approval of the local authorities. On the question of by-laws generally he had never been able to make out what the real grievance of architects was to them. There was no power except in one or two of the large towns to waive building by-laws. It was unfortunately done in some cases, and he believed in nearly every case it was a mistake.

Mr. Munce (Belfast) said that in Belfast they built houses for the people to live in and not to look at. They had no real trouble with architects, but they did have trouble with people who wanted to build themselves. He considered that power was wanted in the by-laws to regulate the size of rooms.

Mr. Searles-Wood, owing to the length of the discussion, said he would not attempt to reply to the points raised. As an old district surveyor he was in favour of by-laws.

CALCULATIONS FOR RETAINING WALLS.

(Continued from last week.)

14.—*A Formula to Suit any Case.*

We have determined the stresses on the joint AB in a very simple case by argument, and must now attempt to deduce a formula applicable to any case.

In fig. 6 it has been noticed that the effect of the new position of W was to make the crushing at A twice the amount it was when W was central, the stress at A being f_0+f_1 and at B being f_0-f_1. If in this latter case f_1 should be greater than f_0, the crushing or compression will be a minus quantity—in other words there will be a tension. f_0 being uniform over the joint is easily found.

It is the weight per unit area, and equals the total weight divided by the area of the joint

$$= f = \frac{W}{A}. \text{ (\textit{See} paragraph 5.)} \quad \ldots \quad (1)$$

In fig. 6 and paragraph 13 we have shown that wherever W is applied there is an equal and opposite resistance, the centre of gravity of which is below C, the point of application of W. This resistance is called T.

Now as W and T are equal and opposite their moments about any point must be equal and opposite.

Take moments about O.

$$M_W = W \times OC.$$

$$M_T = T \times OC.$$

The magnitude of T is the area of the triangle of stresses multiplied by the stress per unit of area.

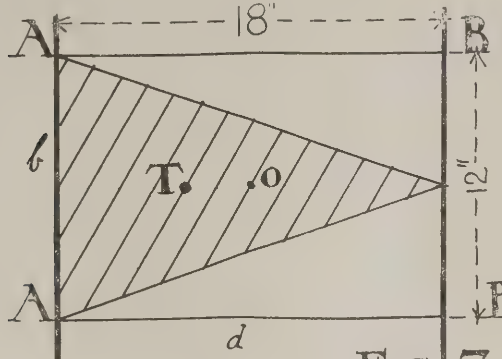

FIG. 7

Fig. 7 is a plan of the joint 1 foot long. The stress at AA is f_0+f_1, and if the material at AA can sustain this stress less of the same material will be required to sustain the diminishing stress towards BB.

At O only half the quantity of material will be required, and at BB nothing is required as there is no stress

The triangle shown hatched-in will represent the material required, the other portion of the wall being unnecessary. (Of course as the material is actually there, the stress will spread itself out over the waste.)

This triangle, seeing that it is capable of resisting the stresses, is therefore the triangle upon which we must depend for the resistance. (If we take any other shape, so as to get a greater stress at say O, the stress at AA will not be equal to f_0+f_1.) Its area is $\frac{bd}{2},$ the total resisting stress is $2f_1 \times \frac{bd}{2}$ and, the leverage being OC $=\frac{1}{6}d$, the moment of the resistance

$$=\frac{1}{6}d \times 2 f_1 \times \frac{bd}{2} = f_1 \frac{bd^2}{6}$$

($\frac{bd^2}{6}$ is called the "Section Modulus" of a rectangular section, and is represented by Z.)

$$\therefore M_T = f_1 Z.$$

It follows that $M_W = f_1 Z.$

$$\text{or } f_1 = \frac{M}{Z} \quad \ldots \quad (2)$$

M_W = W × OC, which is the moment of all the forces about O, and if fig. 1 be referred to, it will be seen that the only force having a moment about O is P.

$$\text{therefore } M_W = M_P = P \times \frac{h}{2}. \quad \text{(\textit{See} paragraph 3.)}$$

$$\text{[From (1) and (2).] } f_0 + f_1 = \frac{W}{A} + \frac{M}{Z}$$

$$\text{and } f_0 - f_1 = \frac{W}{A} - \frac{M}{Z}$$

The formula being generally written:—

$$\frac{W}{A} \pm \frac{M}{Z}$$

the + value being $f_0 + f_1$, and the − value being $f_0 - f_1$.

15.—*The Application of the Formula.*

$$\frac{W}{A} \pm \frac{M}{Z}$$

As an example let us take a wall as shown in fig. 8, length 20 feet, built of hard common bricks, and let us investigate the stresses on the joint AB.

From Table I. we see that the wind-pressure for a wall 5 feet high and 20 feet long is 15.6 lbs. per super foot. Above 5 feet and up to 10 feet high the pressure is 19.5 lbs. per super foot. It will be clearer if we take these two wind-pressures separately, calling their resultants P_1 and P_2, as shown on fig. 8.

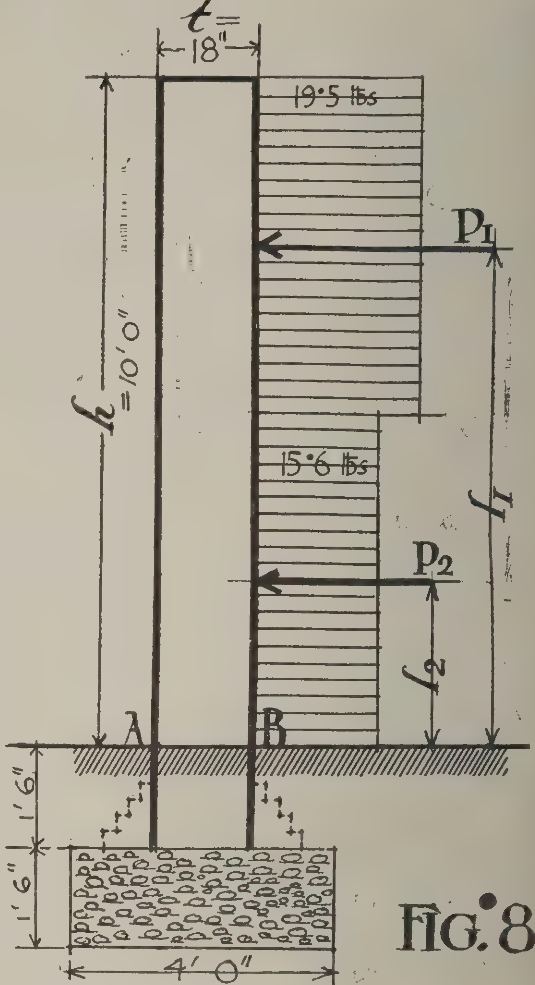

FIG. 8

To make calculations shorter take a 1-foot length of the wall. First find the value of each of the four letters in the formula.

W = Weight of wall above AB.
= Cubic contents in feet × weight per cubic foot.
= 1 × 1½ × 10 × 112 lbs.
= 1,680 lbs.

A = Area of joint AB.
= 1 × 1½.
= 1.5 super feet.

M = Moment of all forces about the centre O of the joint A.B. (Note.—In all unsymmetrical sections of walls, O is the intersection of a vertical line drawn through the centre of gravity of the wall, with the base line A.B.)
= $(P_1 \times l_1) + (P_2 \times l_2.)$ (*See* fig. 8.)
= (19.5 × 5 × 1) × 7.5 + (15.6 × 5 × 1) × 2.5.
= 731.25 + 195.
= 926.25 foot-lbs.

Z = Section modulus.
= $\frac{bd^2}{6}.$ (*See* paragraph 14.)
= $\frac{1 \times 1.5 \times 1.5}{6}$
= ·375 feet units.

Now substitute these values in the formula:

$$\frac{W}{A} \pm \frac{M}{Z}$$

$$= \frac{1{,}680}{1.5} \pm \frac{926.25}{.375}$$

$$= 1{,}120 \pm 2{,}470.$$

The maximum compressive stress f_0+f_1 is therefore
1,120 + 2,470.
= 3,590 lbs. per foot super.
= 1 ton 12 cwts. per super foot,

and this is easily within the safe compression given in Table II.

The minimum compression stress $f_0 - f_1$

$$= 1{,}120 - 2{,}470$$
$$= -1{,}350$$

A negative *compression* means a positive *tension*, therefore the tension at B = + 1,350 lbs. per super foot

$$= 12 \text{ cwts. per super foot.}$$

which is excessive for a common lime mortar joint (*see* Table III.). If this wall is to be built in an exposed position and is to stand by itself it should be built in lias lime mortar, which has a safe adhesion to bricks of 12 cwts. per super foot.

The stress on the top of the concrete foundation must next be ascertained.

$$\begin{aligned}
W &= 11\tfrac{1}{2} \times 1\tfrac{1}{2} \times 1 \times 112 \text{ lbs.} \\
&= 1{,}932 \text{ lbs.} \\
A &= 1\tfrac{1}{2} \times 1. \\
&= 15 \text{ feet super.} \\
M &= (P_1 \times \text{its leverage}) + (P_2 \times \text{its leverage}). \\
&= [(19.5 \times 5 \times 1) \times 9] + [(15.6 \times 5 \times 1) \times 4]. \\
&= 877.5 + 312. \\
&= 1{,}189.5 \text{ foot lbs.} \\
Z &= \frac{bd^2}{6} = .375 \text{ as before.}
\end{aligned}$$

$$\frac{W}{A} \pm \frac{M}{Z}$$
$$= \frac{1{,}932}{1.5} \pm \frac{1{,}189{\cdot}5}{.375}$$
$$= 1{,}288 \pm 3{,}172$$

Maximum compression $= f_0 + f_1 = 1{,}288 + 3{,}172 = 4{,}460$ lbs. per super foot = 2 tons per super foot.

Minimum compression $= f_0 - f_1 = 1{,}288 - 3{,}172.$

$$= -1{,}884 \text{ compression.}$$
$$= +1{,}884 \text{ tension.}$$
$$= 17 \text{ cwts. per square foot tension,}$$

which means that the wall below the ground level must be built in cement mortar. (*See* Table III.)

It will have been noticed that the footings have been omitted. If they were replaced the tension would be decreased.

The calculation of this is left as an exercise for the student.

The stress on the earth below the concrete foundation is found in a similar manner:—

$$\begin{aligned}
W &= 1{,}932 + (4 \times 1 \times 1\tfrac{1}{2} \times 130 \text{ lbs.}). \\
&= 2{,}712 \text{ lbs.} \\
A &= 4 \times 1. \\
&= 4 \text{ super feet.} \\
M &= (19.5 \times 5 \times 10{\cdot}5) + (15.6 \times 5 \times 5.5). \\
&= 1{,}023.75 + 429. \\
&= 1{,}452.75 \text{ foot lbs.} \\
Z &= \frac{bd^2}{6} = \frac{1 \times 4 \times 4}{6}. \\
&= 2.7 \text{ foot units.}
\end{aligned}$$

$$\frac{W}{A} \pm \frac{M}{Z}$$
$$\frac{2{,}712}{4} \pm \frac{1{,}452.75}{2.7}$$
$$678 \pm 538$$

Maximum compression = 1,216 lbs. = 11.7 cwts. per super foot. Minimum compression = 60 lbs., which is a positive quantity, so that there is no tension. If tension had been found the concrete would have had to be increased in size until no tension resulted.

(*To be continued.*)

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

Election of Licentiates.

At the Council meeting of July 20, the following candidates were elected Licentiates R.I.B.A., in accordance with the provisions of By-law 12:—

Frank Abbey, John Sheddan Adam, James Montgomerie Alexander, Henry William Allardyce, Frederick John Almond, William John Almond, William Herbert Alton, Herbert Ambler, Arthur E. Anderson, Frederick William Anderson, John Anderson, Geo. Anderton, Robt. Angell, Tho. Graveley Angell, Alfd. Appleby, Arthur Appleby, Clive Ewart Ardley, John Armstrong, John Arthur, John Maurice Arthur, William Harry Ashford, Charles James Ashworth, Norman Henry Atkins, Herbert Evans Ayris, Harry Edwin Baker, Richard James Baker, Frederick Ball, Walter John Raymond Barker, John Barlow-Smith, Alfred Henry Barnes, Charles Aubrey Bassett-Smith, Roger Beechworth Batchelor, Roderick Hildyar Baxter, Richard George Beard, George Nicholas Beattie, William Beattie-Brown, Arthur Fred Collins Bentley, Ernest Edward Bentley, Robert Bentley, Frederick Fox Beaumont, Henry Stratford de Bertodano, Charles Henry Biddulph-Pinchard, Ernest Frank Stuart Biram, Percy John Black, John Thomas Blackwell, George Henry Blagrove, William John Blain, William Wallace Blair, Alfred William Blomfield, Henry Charles William Blyth, George Arthur Boswell, George Pigrum Bowie, William Craig Boyd, Henry Bragg, Henry Creswick Wilson Brameld, Arthur Owen Breeds, George Woulfe Brenan, Horace George Charles Brewer, Thomas Mortimer Bricknell, Thomas Ridgway Bridson, Fred Broadbent, Francis William Brook-Greaves, Alfred Brown, Alfred B. 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Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Dust and Fire-Resisting Museum Cases.

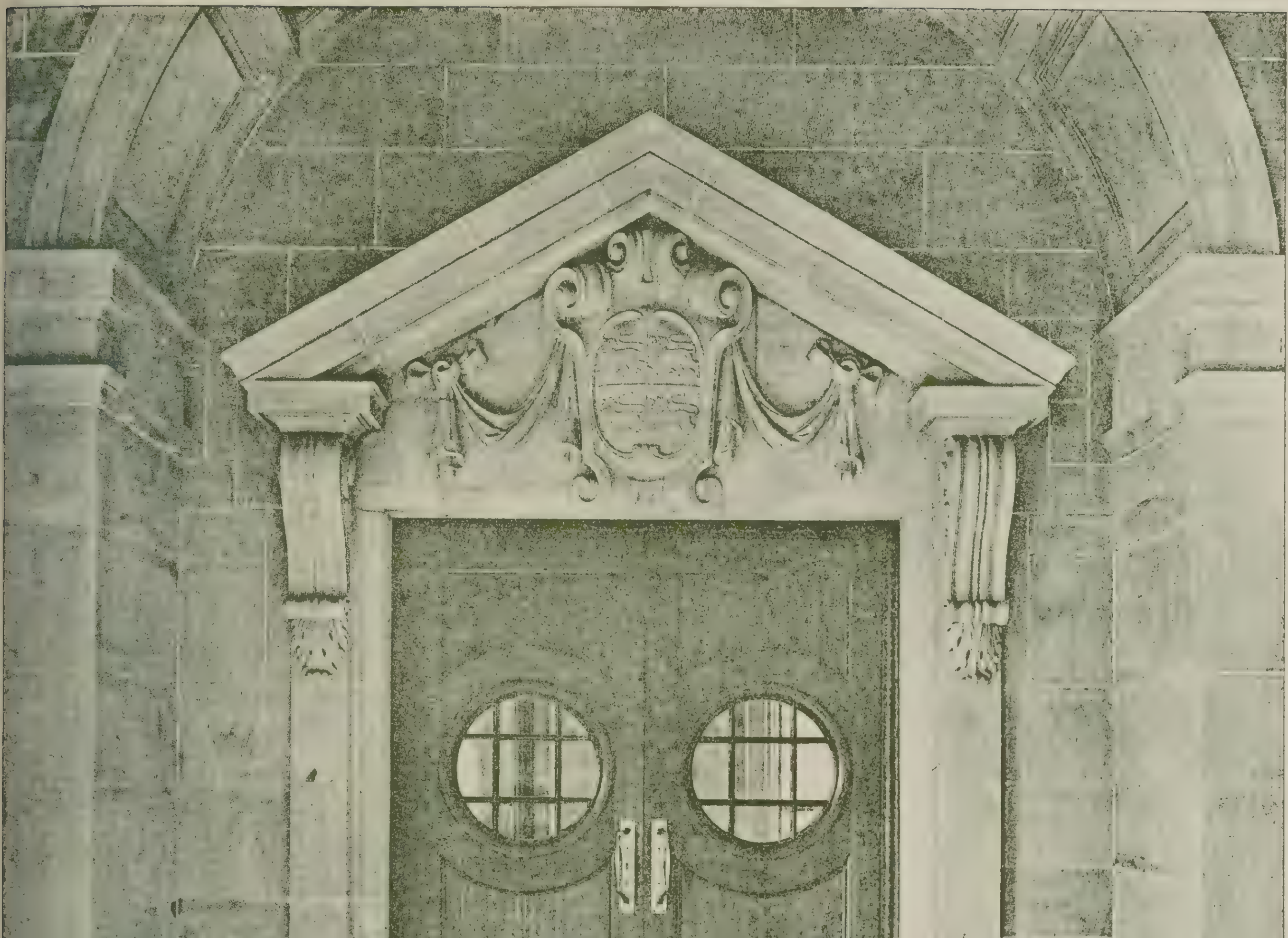
Sir,—I am much interested in this subject, and have lately been discussing same with directors and curators of several museums; and it appears that Delta bronze cases as already installed in several museums are far preferable to steel coppered, &c., as described. The Delta bronze is fireproof, and will not rust, and can be made in beautiful sections of very smooth finish; and if cost is a consideration light Delta bronze sections can be rivetted to steel frames.

This method, I am informed, is as cheap as mahogany and plate-glass. I have lately been shown some places where this bronze has toned down to a lovely colour. I am quite sure the matter is worth English show-case makers specialising in, as there is a growing desire for a change from the monotonous black heavy wood cases.

Thanking you for your courtesy in permitting space, yours truly,

H. Bartlett.

1 Danube Villas, The Boulevard, Weston-super-Mare:
August 7, 1911.



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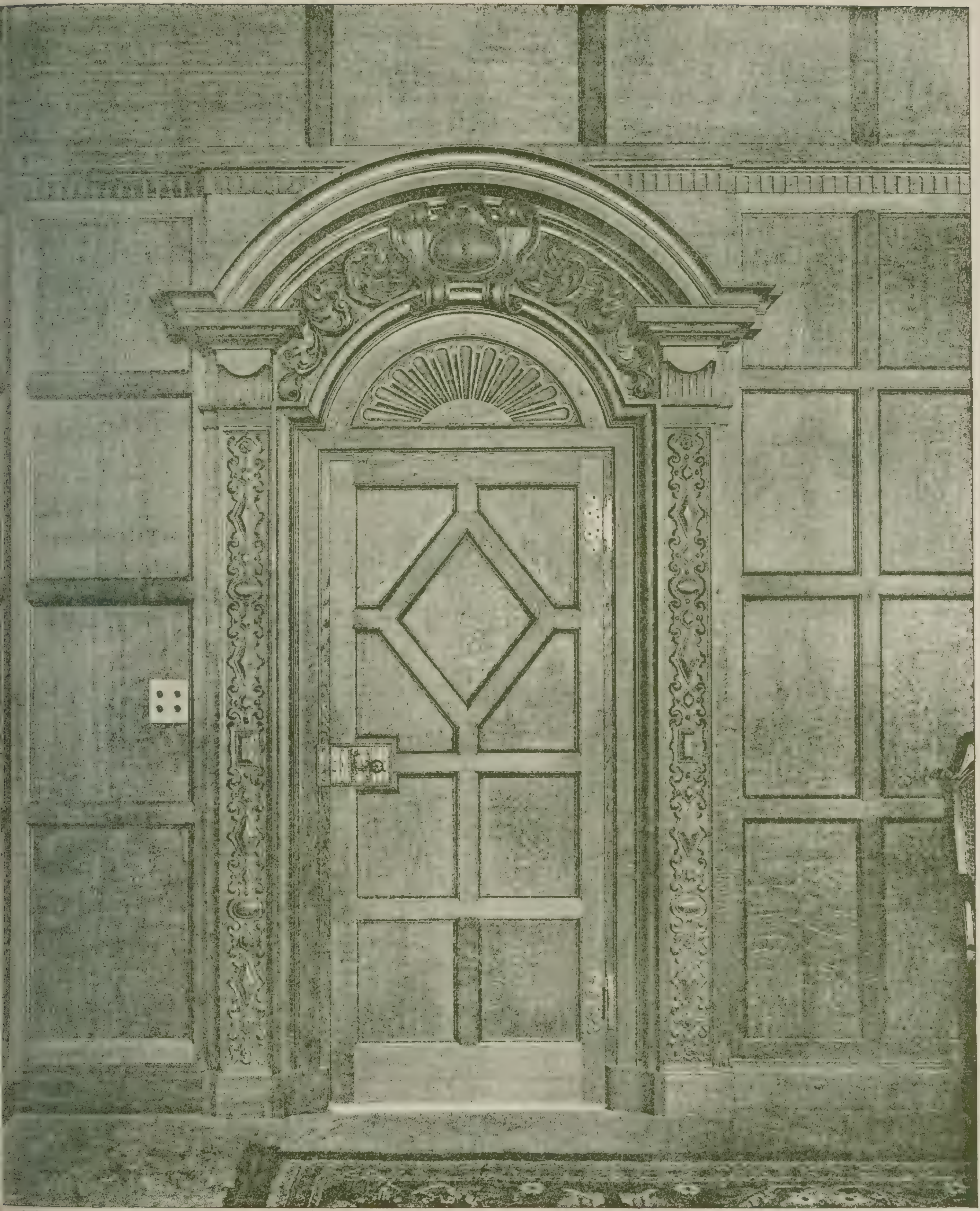

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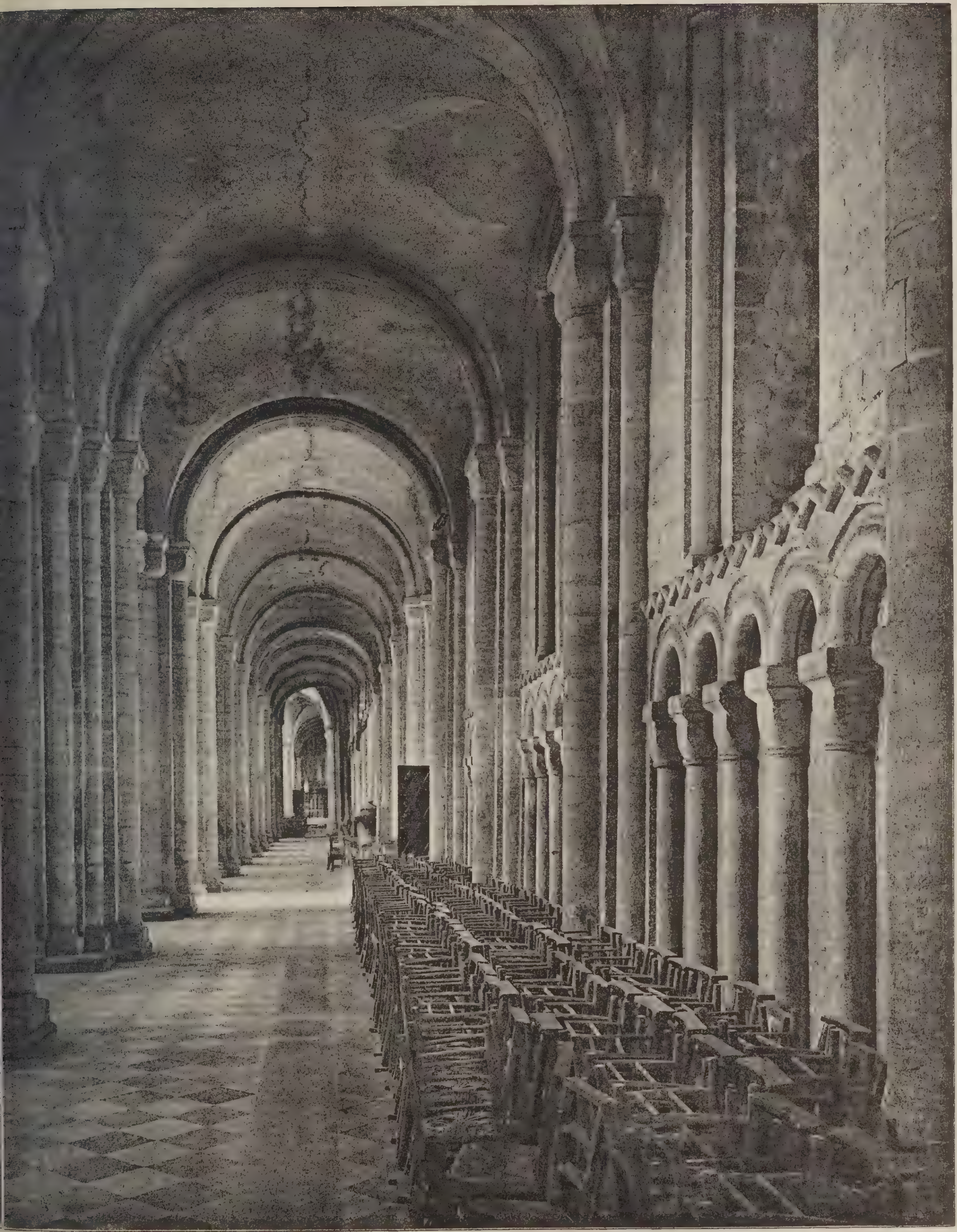

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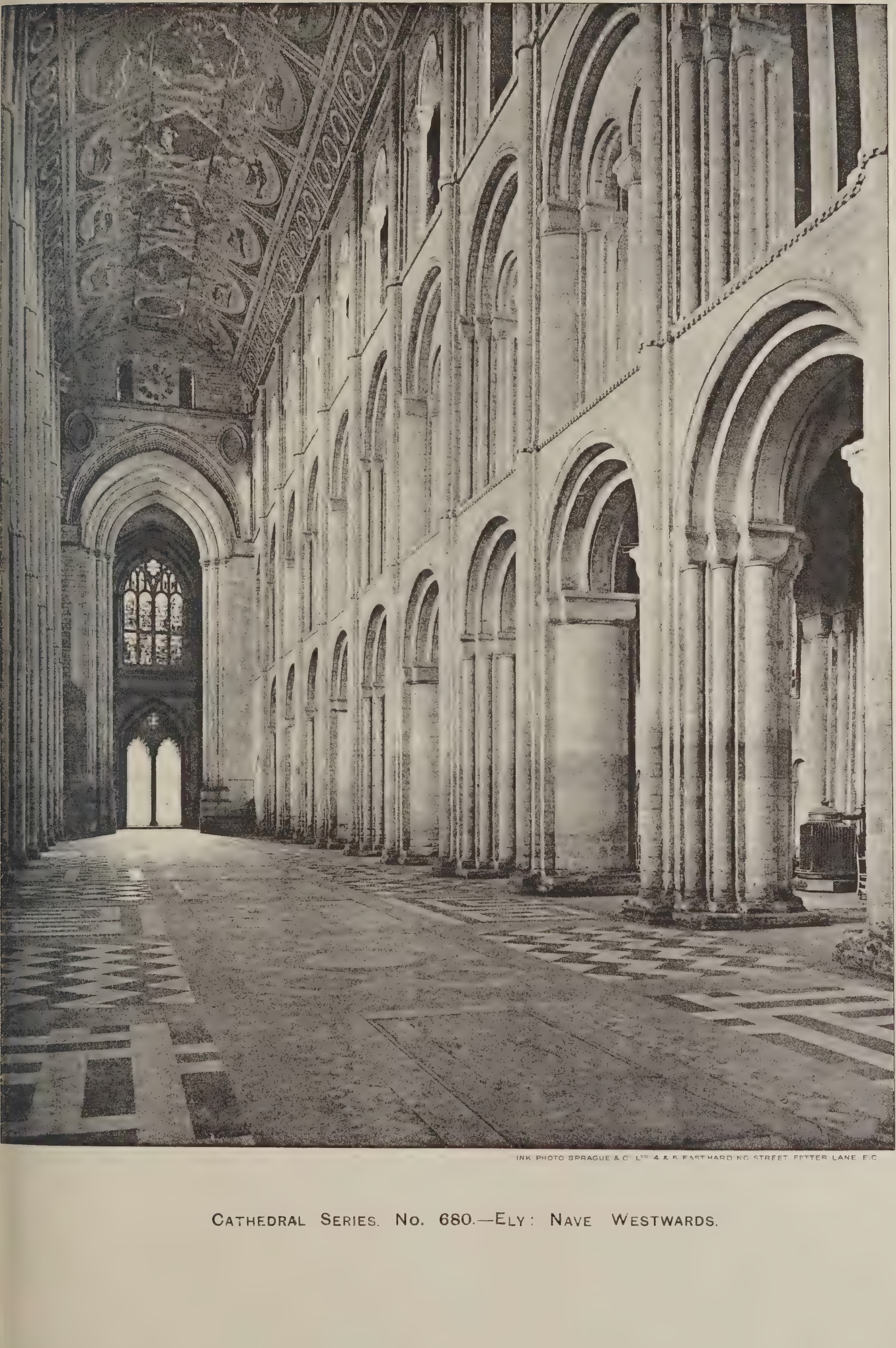

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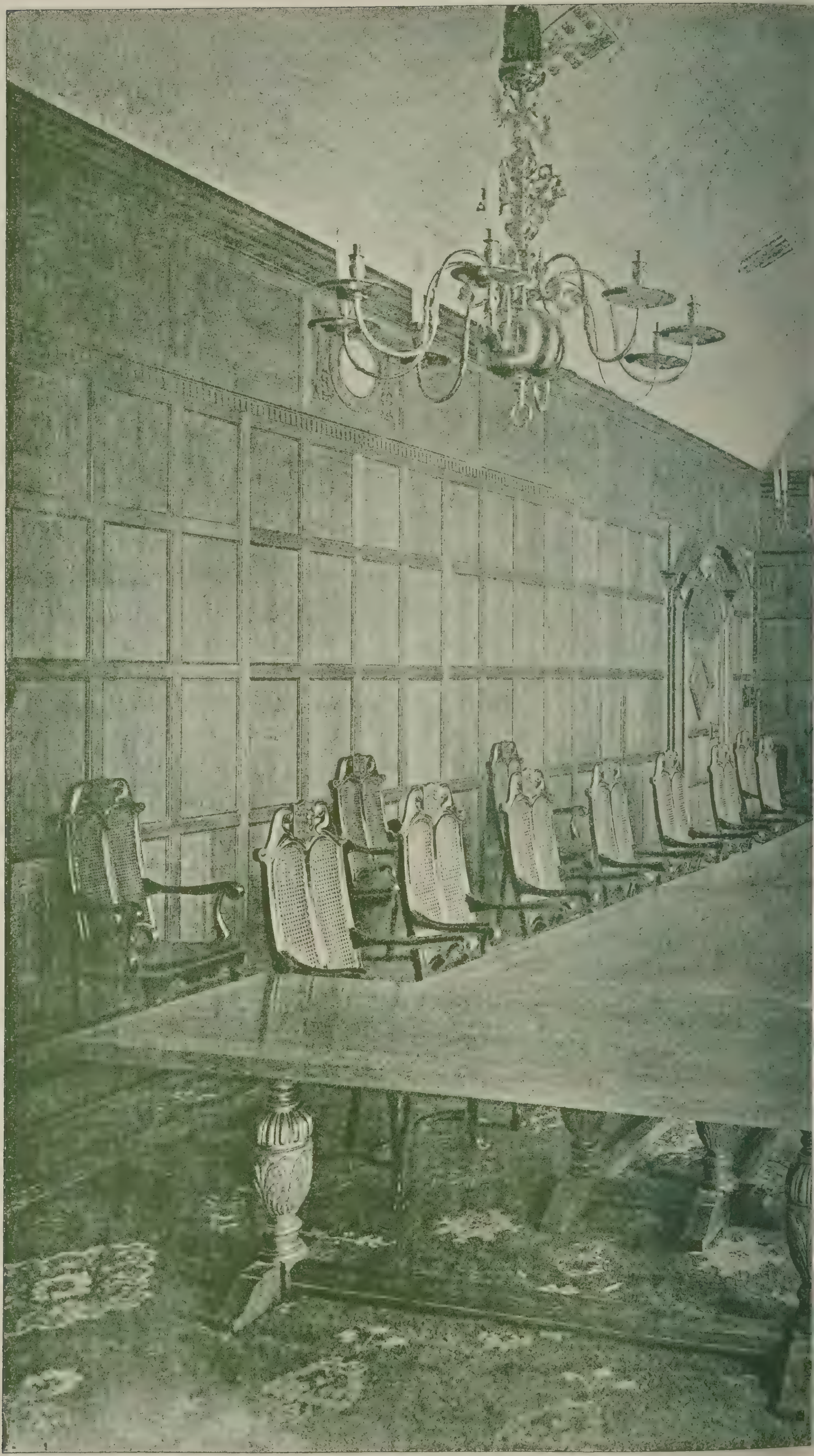

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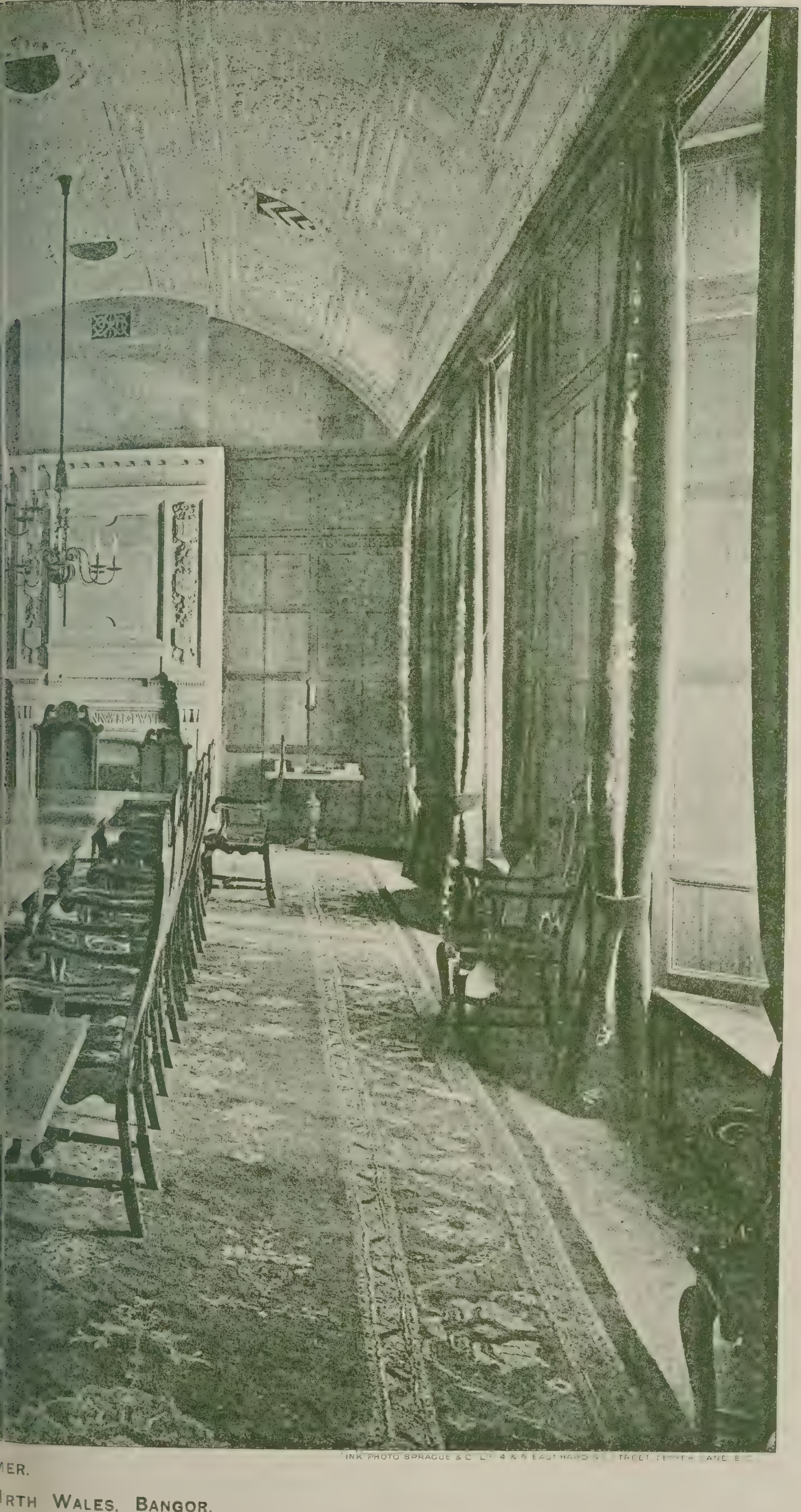

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RTH WALES, BANGOR.

., Architect.

The Architect.

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FORTHCOMING EVENTS.

Saturday, August 19.

Manchester Society of Architects : Visit to Chester Cathedral and Eccleston church (the late G. F. Bodley, architect).

Architectural Association : Excursion of Camera, Sketch, and Debate Club to Holland House.

Thursday, August 31.

Guild of Architects' Assistants : Visit to Victoria Palace, Victoria, S.W. (Messrs. Frank Matcham & Co., architects).

Saturday, September 2.

Northern Architectural Association : Students' Sketching Club.

Architectural Association : Camera, Sketch, and Debate Club, visit to Zion House.

R.I.B.A. SECOND REPORT ON REINFORCED CONCRETE.

ALTHOUGH we are still far removed from a complete knowledge of all that appertains to the use of reinforced concrete in building construction, either as to the stresses and strains that occur under loading or as to the relationships that exist between various forms or kinds of material, our acquaintance with the latest vogue in building construction has become more intimate, both from practical use and from careful research on the part of many experimenters.

Therefore the first report of the Joint Committee on Reinforced Concrete, organised by the Royal Institute of British Architects, which appeared in 1907, is now by way of becoming out-of-date, in the light of further experience and the increased use and knowledge that have been rapidly developed since that date.

The introductory note states that the section on materials has been modified in certain details; the section on methods of calculation has been recast in form, and the standard notation (proposed by the Concrete Institute) has been adopted; the sub-section on columns has been revised and the formulæ proposed have been recast so as to include the cases in which the lateral or helical binding is a material factor in the strength. We need not further trouble ourselves with a comparison between the first and second report, but deal with the latter on its merits.

Throughout the report there are two notable features. First, the pronouncements of the report are *ex cathedra*, the reasons for the recommendations made and the experiments or theories on which the reasons are based being generally omitted. Second, there is repeated admission that as to various matters satisfactory theories and trustworthy experiments are up to the present still lacking. With the first of these features of the report little fault need be found, since the omission to which we have referred makes for brevity and conciseness, whilst the composition of the Joint Committee is such that an authoritative pronouncement may be readily accepted at their hands. The acknowledgment of insufficient data when such occur is evidence of trustworthiness in the recommendations that are made. The adoption by the Committee of the standard notation proposed by the Concrete Institute is a wise step, for even if this notation is not the best possible in the opinion of some writers and students, it is a great point to have a standard notation, even if it is not a perfect one.

After a right insistence on the necessity of careful workmanship in the execution of reinforced concrete, and an expression of opinion that all building by-laws should recognise this form of construction, the report deals with the question of fire resistance. Here we think a mistake has been made in describing the peculiarities of concrete in which coke-breeze, cinders, or slag form the aggregate, when a foot-note on the next page correctly bars its use for reinforced concrete. The fire-resisting qualities of a concrete that must not be used is a subject beyond the proper scope of a report on reinforced concrete.

We cannot approve the Committee's recommendation of the thickness of protection to metal "in all ordinary cases," whilst stating that "more perfect protection" is required "under very high temperature" and "in the most severe conditions." Such teaching ignores the circumstances of every fire in a building. There is no assurance that in any particular case "the most severe conditions" may not be locally developed. Cast iron may be melted in a fire from which wooden furniture may escape with no more damage than the blistering of paint.

In their recommendations as to materials, we think there is still more to be said than that 75 per cent. of the sand should pass ⅛-inch square mesh. In saying that "fine sand alone is not so suitable," what do the Committee mean by "fine sand"? We want the size of mesh on which the bulk of the material that passes the ⅛-inch mesh is retained. With regard to the aggregate the maximum allowable size of ¾-inch would not be very suitable for a cover of ½ inch to the metal in slabs elsewhere stated to be sufficient, a practical reason, in addition to the function of fire-resistance, why we do not agree with the Committee's recommendation.

If "in all cases the proportions of the cement, sand and aggregate should be separately specified in volumes," it seems to us that an explanation is desirable why "the amount of cement added to the aggregate should be determined on the work by weight." We think it would have been better for the report to have omitted all reference to water-tightness of concrete unless the subject, which is not a simple one, had been more fully treated. One-part cement to two-parts sand does not always make a "practically water-tight mortar," and there are other methods of making concrete water-tight than increasing the proportion of cement.

We should have liked to see a recommendation for the use of a larger proportion of cement when hand-mixing is necessary, even though the report says that "whenever practicable the concrete should be mixed by machinery." Further details of points requiring care in the use of centering or casing are desirable, particularly with regard to the construction and use of moulds for columns.

In the section of the report dealing with methods of calculation we fancy that by a printer's error the bending moments are recommended as not less than $\frac{wl^2}{12}$ instead of $\frac{wl}{12}$. We are somewhat surprised that whilst beams with single reinforcement are dealt with comprehensively no reference is made to beams with double reinforcement. Possibly the Committee consider that systems which adopt such reinforcement are not desirable from the point of view of economy, for they give a relation between the allowable stress of steel in compression, and that in the surrounding concrete, so that it is possible with the report in hand to deduce formulæ for double reinforcement.

With regard to slabs supported or fixed on more than two sides, the report states that "it does not appear that there is either a satisfactory theory or trustworthy experiments from which the strength of rectangular slabs supported or fixed on all four edges can be determined," but in the appendices to the report is given a statement of some rules which have been used in determining the strength of slabs. The appendices, by the way, are not the least useful portion of the publication containing the report, and a careful study of these makes clearer some of the unexplained statements and recommendations in the report itself. On the subject of the strength of rectangular slabs we have an appendix on "the strength of rectangular slabs" by Mr. E. F. Etchells; another on "Bach's theory of the resistance of flat slabs supported on all edges and uniformly loaded," by Professor W. C. Unwin; and a third giving a "comparison of the results given by various rules for the strength of flat rectangular slabs supported on all edges and uniformly loaded," by Mr. William Dunn.

Thus the Committee, whilst not committing themselves to an expression of opinion on a difficult and indeterminate question, puts us in possession of the most plausible answers. In dealing with shear reinforcement the report hardly, we think, makes it sufficiently clear that diagonal tension is really the stress that has to be met: hence that vertical shear reinforcement, although, in our present state of knowledge, more readily calculable, is not strictly logical and scientific.

We presume that in their imprimatur on the strength of hooped pillars the Committee are justified by the result of careful and reliable experiment, and on that presumption their recommendations are clear and precise. We rather doubt whether, having regard to the many contingent conditions that make for perfection in pillars, a safety factor of 4 is sufficient for everyday practice.

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.

THE forty-second annual excursion of the Architectural Association is during this week in progress, the valley of the Loire being the district chosen for the scene of study.

On Friday night last twenty-seven members crossed to France by the Dover and Calais route and travelled to Paris, sleeping, more or less, on the train. A short three hours in Paris did not give more than sufficient time for crossing from the Nord to the Quai d'Orsay station, transferring baggage, and a *petit déjeuner à grand prix*. Then a hot journey of three hours by the Paris-Orleans railway brought the excursionists to Blois, where the headquarters were to be fixed at the Hôtel de France for the first few days.

The afternoon of Saturday was spent in a formal visit under the normal tourist conditions to the Château of Blois, and the cicerone entertained the party with a graphic description of the murder of the Duc de Guise and of the Cardinal of Lorraine in December 1588. The interior of the château has been restored and redecorated, under the direction of M. Duban and M. de Baudot, to a presumed reproduction of its condition in the time of Henri III.

The oldest part of the château includes the thirteenth-century Salle des Etats-généraux, which were held here in 1576 and 1588 under Henri III. To about the same date belongs the Tour du Moulin or des Oubliettes, wherein the Cardinal of Lorraine was imprisoned and assassinated. This tower has, however, been enclosed with galleries in the sixteenth century. The chapel and east wing, with the principal entrance, were built by Louis XII. in the Flamboyant period, of which it is one of the best examples of domestic architecture. The north wing was erected for François premier, and is an equally characteristic example of the earliest Renaissance. Then the west wing was added under François Mansart for Gaston d'Orléans, brother of Louis XIII., but not quite completed internally in consequence of Gaston's death in 1660. This wing replaced that constructed by Charles d'Orléans, father of Louis XII.

In spite of the restorations of Duban, there is still much to be seen inside the building of the original construction, chimney-pieces, panelling, tiled floors, and some little stonework, but it is on the exterior that most fascination for the architectural student is to be encountered. Whether the Flamboyant Gothic of Louis XII., the Early Renaissance of François I., for whom Jacques Sourdeau and his son Denis acted as masters of the works, or architects, and the later Renaissance of François Mansart for Gaston d'Orléans, each is good of its period, and there can be no hesitation for the student in making choice of something to study.

From the ramparts of the château can be obtained good views of much of the city of Blois, with the Loire, the church of St. Nicholas, and the distant watershed. The church of St. Nicholas was built between 1138 and 1210 for a Benedictine foundation, and contains much interesting Early, almost Byzantine, detail, as well as good First Pointed work.

The cathedral of Blois, dedicated to St. Louis, is of sixteenth-century date, partly rebuilt under Louis XIV. in 1678, and is rather curious than beautiful. The portal is Renaissance, and the tower at the left of the west front, although retaining some twelfth-century work in its lower stages, was built between 1544 and 1609. The bishop's palace, of which Gabriel was the architect, under Louis XIV., has a beautiful terrace, which now is a public promenade, and from which fine views of the city and its surroundings can be obtained. Other ecclesiastical buildings in Blois are the churches of Saint-Vincent-de-Paul, a Jesuit church built between 1626 and 1671, and Saint-Saturnin, in the suburb of Vienne, on the opposite side of the Loire.

Sunday morning was spent by the excursionists without fixed programme in wandering through the city, visiting the cathedral and other churches, or studying and resting in the shade at the château, for Blois was in possession of a fine example of heat wave. Blois contains many examples of interesting old houses, notably in the rue Saint-Honoré and the rue Saint-Lubin.

On Sunday afternoon a drive was taken by most of the party to the small Château de Villesavin, which, as an inscription on the garden front informs us, was built in 1537 by N. Le Breton, Sieur de Villandry, Secrétaire des Finances du roi François I$^{\text{er}}$.

> "D'une grande forêt un petit bois voisin
> Ici, vit autrefois naître Villesavin
> Qui, bien qu'ayant subi des ans le long outrage
> Orne encor du Beutron le champêtre rivage."

As a further legend reminds us, "de l'art qui décorait les palais des Valois dans un humble essor apercevez les lois," we have in this little château an exemplar of the architectural treatment of greater palaces in the time of François I. The house itself is L-shaped on plan, but an entrance courtyard is cleverly formed by a division-wall to the farmyard, terminated by a small chapel to balance the end of the opposite wing. The building is practically only of one storey, with a steep roof, in which dormer windows of rich detail give piquancy and character to the design. The garden front has a projecting porch, with steps leading up to the principal or ground floor. Altogether the visit to Villesavin formed a good introduction to the more important châteaux of the Loire to be visited during the week. On the return to Blois, a short stay was made at Chiteau, which has a picturesque church.

(To be continued.)

THE ROYAL ARCHÆOLOGICAL INSTITUTE.

(Continued from last week.)

THIS year the summer meeting of the Royal Archæological Institute falls into two divisions, viz. the opening five days, when Cardiff served as a centre, and the remainder of the time, when Tenby was the headquarters. It was a wise decision which made the organisers conclude with the latter town, for on looking back memory will rest so happily on the breezy cliffs of Tenby, with their glorious panoramas, as to obliterate the discomforts of the preceding days, when Cardiff seemed like a baker's oven to pilgrims weary after a day's strenuous sightseeing. Tenby is beautifully situated on Carmarthen Bay, slightly over a hundred miles distant by train from Cardiff. Nature was prodigal when endowing the town with beauty, and showed special favour in presenting her with an ever-changing sea palette.

It is historic ground, too, for though the written page may not have stirring events to show of Tenby, there is still the strong town wall gravely standing guard as it has done for five centuries. In some respects the town is almost a world unto itself. We cannot do better than quote the following succinct account of the town and district given to the members by Mr. Edward Laws, F.S.A., of Tenby:—

BELMONT TOWER, TENBY

The visitor to Tenby is neither in England nor Wales, but in little England beyond Wales. Its existence came about in the following fashion. Very soon after the Norman Conquest certain adventurers, by reason of their mastery of the sea, settled themselves in Pembrokeshire, built castles, and established a strong base from which they could thrust into the heart of Wales. From this same base Ireland also was invaded. But, owing to this latter movement, Pembrokeshire was so depleted of its men-at-arms that the Welsh rose and burnt Tenby, and it lay waste for over half a century. Then King Henry II., seeing that a strong man was necessary, gave the earldom to William Marshall, and the government became a Palatinate. Under the Marshalls, De Valences, and Hastings, the Palatinate was pretty well independent. The King's writ did not run here. But when John Hastings the Younger was killed in a tournament in 1389 King Richard II. murdered Edward Hastings, the heir, and made his queen Countess of Pembroke. This broke up the Palatinate, though there followed notable earls like Humphrey of Gloucester and Jasper Tudor.

The jurisdiction in the county was very peculiar. South Pembroke was ruled from the Palatium of Pembroke. Haverfordwest was a lordship more or less independent, of which the queen consort was generally lady. Deurland, or St. David's land, was under episcopal jurisdiction. Cemmaes was a march ruled by a Lord Marcher, who, by the way, survives in the person of Sir Marteine Lloyd, he being the only Lord Marcher extant. As may be supposed, these various and often hostile communities were a happy hunting-ground for rogues; a gentleman in trouble slipped from one of them to another with the greatest ease. If he was very hard pressed he sought hospitality from the White Knights of St. John of Jerusalem at Slebech, informing them that he was a Christian in distress and demanding sanctuary from them in performance of their vows. So the good hospitallers had to take him and look after the stolen cows. Church matters were also affected by the Palatinate. In very early days Arnulph de Montgomerie gave Monkton church to the Abbey of Seez, and it became an alien priory. As home church of the Palatinate one might expect to find a building such as Tintern, the earls being powerful, rich and pious. Nothing of the sort ever existed. They did endow the priory with all the Church patronage on the south coast of Pembroke from Angle to Longhouse. But they never spent much on its adornment. As an alien priory it was half its time in the hands of the Crown, which led to innumerable squabbles between king and earl. When Henry V. finally seized the alien priories for good, his brother Humphrey, as earl, demanded and got the priory of Monkton, with its dependencies; these he gave to his friend, the Abbot of St. Albans.

The town of Tenby has, it will thus be seen, no slight claim to be regarded as of considerable historic importance. Its walls are in a remarkable state of preservation for the most part on the two most important sides.

TENBY.

The official meeting of the Archæological Institute was resumed on Monday, July 31, when a short formal reception was held at the Town Hall by the Mayor and Corporation. This was followed by an inspection of the walls, under the guidance of Mr. Edward Laws, F.S.A., who has made a special study of the subject and written a series of papers for *Archæologia Cambrensis* dealing with their complete circuit.

The military architecture of Tenby is divided by Mr. Edward Laws, F.S.A., into five periods: (1) Such works as were in existence before Tenby was a walled town. These are on a headland called Castle Hill, and perhaps belong to the twelfth century. (2) Towers, gates, curtains, encircling the town, probably built by Earl William de Valence (1275-1300). (3) Additions to and enlargements of these in 1457 by Earl Jasper Tudor. (4) Elizabethan restorations, 1588. (5) A few unimportant alterations made between 1643 and 1648. On the land side the defences are still almost complete. They commence at the north gate (also known as the Great or the Carmarthen Gate), overlooking the sea, but which is now the site of the Royal Lion Hotel. The wall ran for fifty yards to a corner bastion. This part of the wall was originally about 18 feet high on the outside and 13 feet on the inside, with one line of loops. Behind was a masonry walk 4 feet 6 inches wide and 8 feet high, from which to serve the loops. In 1457 Earl Jasper raised the height of the wall, including the crenellation, to 25 feet, and also raised the masonry platform to 13 feet 6 inches. Although he thereby covered up the lower loopholes he substituted a higher series of loops. At the semicircular bastion the wall turned at right angles, and still goes in an unbroken straight line over 20 feet in height for more than 400 yards to the sea. Including the two corner ones there are now seven bastions along it. The most important is, and always was, the south-west gate, or "Five Arches," in the middle, the last noble survivor of the five gates which once defended Tenby. The internal area of this semi-circular bastion is 40 feet by 20 feet. It is worth mentioning that in 1873 the Corporation ordered the gate to be removed, and, in fact, the materials had actually been sold. Fortunately a local doctor bestirred himself so effectually that an injunction was obtained in the Court of Chancery to prevent this act of vandalism being carried out then or at any future time. These two sides of the wall were defended by a moat 30 feet wide, which was for the greater part dry. When the wall had reached the high and rugged cliff it turned north again, following the irregular line of the shore with a somewhat weaker line of defence. In several places this portion has disappeared. About in its centre stood Brechmaenchine (or the Chine of the Spotted Stone) Tower. This name has been locally adapted in the case of the flight of rough steps leading to the shore to "Break Man's Shins." Where the wall came to a narrow neck of land leading to Castle Hill it turned once more so as to link up with the northern gate. Here again the line of walling only remains in short lengths.

The Castle Hill is a separate fortress, forming, as it were, an inner bailey round the little Don, while the town, encircled by its walls, completed the arrangement as an outer bailey. The Castle Hill was under the jurisdiction of a military governor.

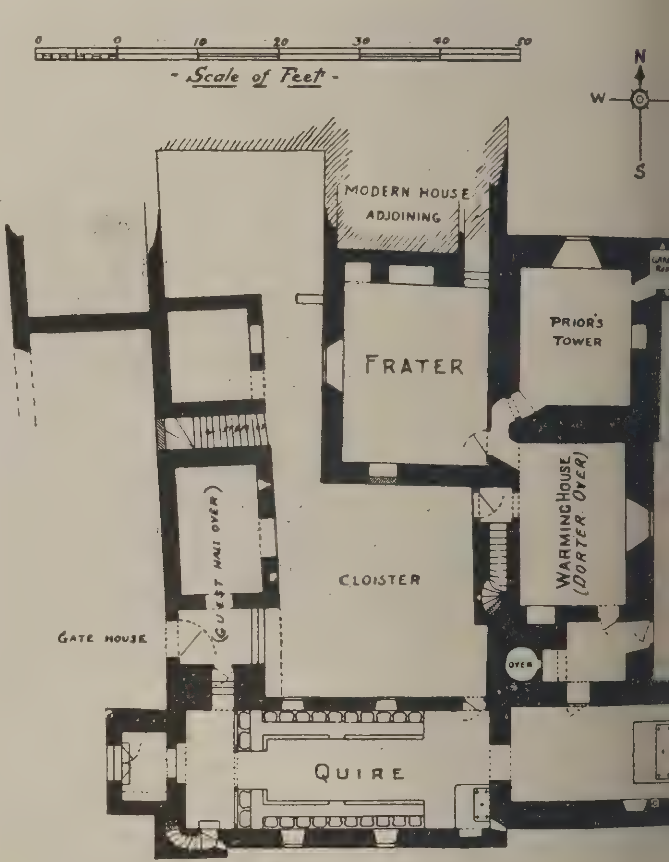
After perambulating round these defences a move was made to the Town Hall. At the reception the Mayor had given the Archæological Institute an invitation to accompany him when he opened in state St. Margaret's Fair. This is a ceremony of no little local importance, and always takes place on the last day in July. The procession started out from the Town Hall headed by a brass band, next came a mixed collection of citizens, archæologists, town councillors (resplendent and conspicuous in tall hats), mace-bearers, town crier, aldermen and Mayor, and ended with more archæologists and more townsfolk. At certain intervals the procession halted so as to allow the crier to ring his bell and announce that the fair was now open, and would continue for three days by royal charter of Queen Elizabeth, and that if any grievances arose a *pied poudré* court would be held by the Mayor and magistrates to redress the same. On arrival at the fair ground the procession lost some of its dignity in a general scramble to get a seat on the switchback roundabout, which gave a gratuitous preliminary journey. Fortunately the Mayor in state, the mace-bearers, and many of the councillors were found accommodation. And so, too, were some of the members of the Royal Archæological Institute who were able to successfully challenge the pressing claims of less official partakers in the ceremony.

Tenby Church.

The church at Tenby is a capacious one; in fact, with the exception of St. Davids Cathedral, it is the largest in Pembrokeshire. It is now dedicated to St. Mary, but Mr. Laws, in his account of the building, suggested that its original dedication was to St. Bridget, as St. Mary was not very popular among the Welsh as a patroness, being distinctly a Norman saint. In 1186 the church that stood on the site of the present south aisle was destroyed, with a considerable part of Tenby, by the Welsh, who "by plain force won the town and burned it to ashes." The excrescent wall on the west side of the tower is thought to be part of the old church, which probably had a chancel where the tower now stands. It lay in ruins until 1245, when Warine de Munchensy rebuilt it. He had married Joan Marshall, and though it is very doubtful if he was ever elevated to the earldom of Pembroke, he enjoyed Palatinate powers in right of his wife. His additions seem to have been the tower, nave, both aisles and the chancel. He covered them with a vaulted roof, remains of which may be seen, though none of his pillars exist. Guy de Brian, one of the early Garter Knights, and a mighty church-builder, seems to have had a hand in building Tenby Church. He probably built the spire, St. Anne's Chapel, and altered the chancel roof. But the existing structure owes most to the Perpendicular architect who had a long lease of power in Tenby Church. He widened the south aisle, he remade all arches and piers in the church, built a north chancel aisle which was used as a baptistery, raised the high altar by a flight of eleven steps, and covered the original altar space so as to make it into a crypt chapel, and levelled the floor of the church. A remarkable feature is the west door, originally the inner door of a great cruciform porch erected in 1490 at the same time as St. Mary's College, which once stood in the churchyard. Other notable features of the structure are the west windows, the wooden roof of both choir and nave (dating from about 1470), and the monuments. Professor Freeman admired Tenby Church "both on account of its architectural features and by reason of its rich store of monumental antiquities." The most elaborate of the latter are two tombs of late fifteenth century merchants, father and son, each with their two wives, who were of considerable importance in Tenby. The earliest monument is to the east of the north entrance, and shows the figure of a woman (probably the wife of a governor) under a cinque-foiled canopy. A modern slab has been put up to commemorate Robert Recordi, who "was born in Tenby about 1510, and to whose genius we owe the earliest important English treatise on algebra, arithmetic, astronomy, and geometry. He also invented the sign of equality (=) now universally adopted by the civilised world. Robert Recordi was Court Physician to King Edward VI. and Queen Mary. He died in London in 1588 in prison."

Caldey Island.

This island stands about one mile as the crow flies from Tenby, and the journey to it was made by a small steamer. It is, as the members were told on landing, an island with a history behind it. Relics of pre-historic days exist in the kitchen middens and bone caverns. The first mention of Caldey is in the "Acta Sanctorum," parts of which at least are accepted as trustworthy bits of history. One of these is the life of St. Samson (495-564), the second abbot of Caldey and Bishop of Dol. At that time Caldey seems to have been attached to the University of Llantwit Major, of which St. Illtyd was abbot. In the sixth century there was here a Celtic monastery of considerable importance, with which the names of St. Pol de Leon, St. Brieuc, St. Gildas (the historian), and St. David are associated. Of that period the most interesting relic is the ogham stone now in the Priory Church. In 1120 the island was given to the Benedictine monastery of North Pembrokeshire. The Celtic foundation had expired more than a century previous, possibly owing to the incursions of the Danes, who in 997 burned the monastery and murdered the bishop and monks at St. Davids. The Benedictine cell, of which considerable remains exist, was probably erected on the site of the previous buildings. Provision was made against the attacks of pirates, who for a long time were a constant menace. At the time of the Dissolution the island was purchased and turned into a farm. In 1897 it came into the possession of Rev. W. Done Bushell, F.S.A., and five years ago it became the property of a community of Benedictine monks of the English Church.



CALDEY PRIORY.

The inhabited portion of the island may be said to be on a gradual sloping plateau running from Priory Bay on the north side to Chapel Point on the south. We reproduce a conjectural plan of the Priory. The fourteenth-century tower at the west end of the choir has a curiously shaped spire, and is out of the perpendicular owing to a settlement of the foundations. The ogham stone in the church is said to bear this Latin inscription: "With the sign of the Cross of Jesus I, Illtyd, have fashioned (this monument). I ask all who walk in this place to pray for the soul of Cadwgan." The remainder of the priory buildings have been altered almost out of all recognition, but the little courtyard or cloister is at any rate picturesque. The village church of St. David stands well away from the priory, and may or may not be of Celtic origin. Of course, at the Dissolution it fell into ruins. Seventy years ago it was adapted for the purposes of a school, which was an improvement on its previous use as a blacksmith's shop. As it stands to-day the building does not arouse much architectural enthusiasm. It is far less interesting than the piquant priory church already described, which has wonderfully survived its uses as a brewery, laundry, and lumber-place.

CAREW CASTLE.

But Caldey Island is for the living as well as for the dead. The brotherhood to whom it belongs are endeavouring to recreate mediæval monastic life in the twentieth century. At present they number, we believe, about thirty. The public are forbidden access to the monastery precincts, but on the occasion of our visit the detached monastery church was thrown open so as to enable the beautifully fitted choir to be seen through the open screen. The buildings erected by the brotherhood for their personal use and for the benefit of those on the island are from the designs of Mr. J. Coates Carter, and are highly interesting. At present their white walls and red roofs are somewhat over-bright, but these qualities will soon be lost even at Caldey, where the climate is so mild as to allow wild fuchsia to grow in abundance. It may be mentioned that the building work is not let out on contract, as it has proved more satisfactory to employ the men directly, under the surveillance of a clerk of works and under the watchful eye of Mr. Coates Carter.

PEMBROKE CASTLE.

The Island of Caldey, serenely standing in the world and yet not of it, ought to bring repose to troubled souls. And it was fitting to leave not with the blatant notes of a German band, but with the gentle sound of a carillon ringing in one's ears.

In the evening a conversazione in the Assembly Rooms was attended by the members of the Institute by invitation of Captain Hughes Morgan, the Worshipful the Mayor of Tenby. The two handsome silver maces, with several charters and other documents, were displayed. Mr. Edward Laws, F.S.A., and Miss E. H. Edwards also showed prints, drawings, and other objects of local antiquarian interest.

Tuesday, August 1.

CAREW CASTLE.

A picturesque motor drive of six miles brought the members and their friends to Carew. The first object to attract attention was a remarkably perfect cross standing on a new stone platform by the roadside, near the entrance to the castle. Mr. Edward Laws said the cross resembled one seen on the excursion to Llantwit Major; but it was even more like those at Nevern, Pembrokeshire, and Golden Grove, Carmarthenshire. The late Mr. Romilly Allen (than whom there was no greater authority on inscribed work) considered that all these were designed by the same artist, and that they had much in common with the crosses of Devon and Cornwall. Mr. Allen and Sir John Rhys are agreed as to the curious incised lettering of the inscription, which runs thus:

MARGIT
EUT RE
CETTF.

and translate it as: "Margiteut of Rhyed made it." There are replicas of this inscription cut on a stone in co. Wexford, and another on Fethard Castle. It is believed to be of the ninth or tenth century. The cross stands about 14 feet high, and the shaft is covered with panels of knotwork pattern. According to Mr. Allen three typical forms of ornament occur on all the Welsh crosses mentioned above:

"First a square divided diagonally and filled with an L-shaped fret; second, two oval rings interlaced crosswise; third, a square with four T's arranged like a Chinese swastica."

Carew Castle, as will be seen from the view we give, was a robustly-built structure. The name is locally pronounced "Carey," and is derived from the plural of the Welsh Gaer or Caer, which means a camp, spelt Caerau. This word the English long ago decided to pronounce "Caroo." From this castle, said Mr. Laws, sprang the Carews and Careys, the FitzGeralds and Geraldines of all sorts and sizes. It is recorded that when Gerald de Windsor, the first Seneschal of Pembroke, married Nesta, the *chère amie* of King Henry I., the "Helen of Wales" and daughter of Rhys ap Tudor, Prince of South Wales, she had a building which stood on this site as her dower. From her marriage sprang the great clan mentioned above. In Edwardian times a castle was built here on the four-tower four-curtain plan so common at that period. The castle remained in the hands of the Carew family until the end of the fifteenth century, when Edward Carew disposed of the estate to Sir Rhys ap Thomas, who transformed the northern wing and lived here in almost regal state.

All the kingdom is the King's
Except where Rhys does spread his wings.

In this building he gave the banquet to over one thousand guests in April 1507, when he celebrated his Garter with a magnificent tournament lasting five days. His grandson Griffith was obnoxious to Henry VIII., and lost his head in consequence. Carew Castle became royal property. Queen Mary granted it to Sir John Perrot, an illegitimate son of Henry VIII. He commenced the eastern wing, but died in the Tower before its completion. There is a post-mortem inventory of his goods in which timber for the flooring and glass for the windows of this wing are mentioned. As the employer was away a prisoner the jerry-builder worked his wicked will, with the result that the beautiful oriel windows in the Perrot wing have fallen out, or, falling into decay, they were fixed in with wood. After Perrot's death the Crown resumed possession, and James I. re-granted it to the Carews, and in their hands it has remained. There was some unimportant fighting here in the Parliamentary wars.

Mr. St. John Hope, in describing the architecture of the castle, pointed out that it was not to be regarded as a fortress. It was on plan a square, with drum towers at each corner. One curious thing about it is the weakness of its entrance. The present little gatehouse is merely an addition to the curtain wall. The original entrance must have been an arch cut in the wall and presumably defended by gates. The main curtain wall had a very strong gatehouse which was apparently the oldest part. In the castle were two distinct sets of chambers, one dating from its first erection and the other belonging to different times. Amongst the apartments on the east side is a quite perfect chapel with a niche by the entrance door for the holy-water stoup. A fireplace was introduced after the chapel had ceased to be recognised as such. Leading off from it were a comfortable set of priest's rooms. Sir Rhys ap Thomas evidently attempted to make the building more comfortable, and struck out windows in all directions. The hall was built as usual on the first floor, over a great cellar, and was approached from the inner court by outside steps. It was more or less altered by Sir Rhys ap Thomas. The large porch gave access not into the hall itself but to the covered passage or screens. It was, said Mr. Hope, very instructive to see a big work like that in a partly unfinished condition, because it gave an insight into Elizabethan building methods.

Monkton Priory Church.

This church seems scarcely worth a journey for its own sake, though anyone visiting Pembroke ought to include it in their programme, as it is only a few minutes' walk from the great castle. As it stands it is a monument of what care and knowledge can do in a few years to atone for the neglect and misuse of centuries. According to the programme the church was that of an alien cell of Seez, in Normandy, founded in the twelfth century. When the alien houses were suppressed (*temp.* Henry V.), it was given by Humphrey, Duke of Gloucester, to John of Whethampsted, and by him to the Abbey of St. Albans. It has an aisleless presbytery and a nave with a central tower, and a detached chapel on the north. The north wall of the nave is double. In 1887 the church was in a deplorable condition, and the number of people attending was only six. But since that time many thousands of pounds must have been spent on judiciously restoring it. The presbytery is now the long choir of the church, and there is, of course, no dividing wall now between what used to be the monks' church and the public church.

Pembroke Castle.

This castle is, like that of Carew, built on a "pill" or creek of Milford Haven. There the resemblance may be said to cease. The general plan we give elsewhere shows the part Pembroke Castle played as to its position with Pembroke itself. The fortress was erected on a most strategic site at the spot where the river makes a great bend.

Mr. St. John Hope, in describing the building, said that from his point of view as guide it had been a most unfortunate thing that the castles hitherto visited by the Archæological Institute had all been founded by private individuals and not by the Crown. This fact meant that there were no references to them in the Pipe Rolls. But Pembroke was a royal fortress built for the defence of this part of the country, and to effectively control the passage of the river. The present structure contains nothing earlier than the thirteenth century, though it is said to have been established by Gerald of Windsor in 1105. The so-called Norman hall has nothing Norman about it. Entrance to the outer ward is gained first through an archway and barbican which stand at right angles to the great gatehouse. This is a very strong affair, and was equipped with several means of preventing people forcing an entry. Mr. Hope, however, emphasised the fact that amongst these would not be included either molten lead or boiling oil. The area of the castle enclosure amounted to four acres and was divided into a large outer ward and a much smaller inner ward by a deep ditch (now filled up) with its gate. One of the facts usually mentioned is that the Welsh king, Henry VII., was born in the outer courtyard of the castle. The present idea is that he was born somewhere in the great gatehouse. But with this theory Mr. Hope differed. One reason for doing so was the fact that it had not been so recorded by Leyland. Moreover Leyland states that the event was marked by placing the royal arms over a fireplace. And in the gatehouse no such fireplace is to be seen. It seemed more probable the birth occurred in one of the smaller towers. The principal buildings were in the inner ward. Near the inner gate was a chapel and a comfortable apartment which may have served for the soldiers on guard. What is marked on the plan and generally known as the "Keep" Mr. Hope said ought to be called "the great tower," the word "keep" not being found in use much before the reign of Elizabeth. This great tower, standing by itself upon a rock, was described by him as almost without parallel. It used to be divided into five storeys. Leyland says that there was a millstone on the top as a finish to the capping. The tower stands 75 feet high and is 60 feet in diameter at the base, where the walls are nearly twenty feet thick. The arrangement of the other buildings must be somewhat uncertain. The so-called Norman hall may or may not have been a hall of the thirteenth century. Towards the end of the thirteenth century they erected alongside of it a much finer hall with beautiful two-light windows of delicate tracery. One of the curiosities of Pembroke Castle is the Wogan Cavern underneath the north hall just mentioned. It measures 76 feet long by 59 feet broad, and is approached by a flight of stone steps. It is, no doubt, a natural cave enlarged by the early builders and incorporated into their buildings. The outer face to the river was covered by a wall, in which an opening was left protected by an iron gate. It would seem admirably fitted for storage purposes.

The successive castles on this site have played no inconsiderable part in English history from the days of Arnulph de Montgomery to 1648, when Cromwell dismantled the fortifications. It is now a noble and well-looked-after ruin.

(*To be concluded.*)

ILLUSTRATIONS.

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.

OUR plates this week are in illustration of buildings visited during this year's annual excursion of the Architectural Association to Touraine. The sketches and measured drawings were made by Mr. Banister F. Fletcher, F.R.I.B.A., who also lent us the photographs that we reproduce.

NATIONAL SANATORIA.*

UNDER the National Insurance Bill of this session it is proposed to be enacted by Clause 47 that:

"1. If under any other Act of the present session any sum is made available for the purposes of the provision of sanatoria and other institutions for the treatment of tuberculosis or other such diseases as the Local Government Board with the approval of the Treasury may appoint, such sum shall be distributed by the Local Government Board with the consent of the Treasury in making grants for those purposes;

"2. If any such grant is made to a county council the Local Government Board may authorise the county council to provide any such institution, and where so authorised the county council shall have power to erect such buildings and to do all such things as may be necessary for the purpose, and any expenses of the county council, so far as not defrayed out of the grant, shall be defrayed out of the county fund:

"3. Provides for the co-operation among county councils and other smaller bodies by the creation of joint boards or otherwise, and for the partition among the various bodies of the cost of such sanatoria."

With the necessary local variations the Bill applies to England, Scotland, and Ireland.

For the first time in the United Kingdom the provision of Sanatoria, as one of the means of dealing with tuberculosis, is proposed to be recognised as a national obligation, where hitherto it has been left to private charity.

As has always happened in our kingdom, and practically in most civilised kingdoms, it has been owing to the pioneer work of individuals, the strenuous action of men of foresight, intelligence and imagination, who, by their success in that to which they have put their hands and brains, have demonstrated the soundness of their judgment, that all great advances have been made; whether in founding colonies, in developing great industries, in the domain of science and art, or in attacking the insidious enemies at our door, such as disease, squalor, and insanitation. "By their faith ye may know them," their purposeful belief in the means to a great end, based on the observation of causation and effect, on reasoned analogies, on logical deductions, backed by an energy which has cried out for new or wider fields for their talents, time and opportunity. In the domain of sanitation, prejudice, apathy, the deadly conservatism of habit, and the fear of innovation, have had to be overcome.

The sanatorium, in a nutshell, is the embodiment of the root idea of open-air treatment under medical supervision. It is strange nowadays to find that although the necessity for this open-air treatment has been insisted on by apostles of health at intervals over centuries, and more persistently in the eighteenth and nineteenth centuries, their gospel was for a long time unheeded or ridiculed, they were as "voices crying in the wilderness." But such voices are not lost. They create wave sounds which, however attenuated they may appear to become, fall here and there on ears that are attuned to receive them, and new centres of dissemination take up the cry and carry on the message.

When at last the new doctrine came to be tentatively accepted, it was held that to make it efficacious patients should be located on mountain tops at altitudes where it was said no tuberculosis existed, and the first sanatorium was erected at Görbersdorf, in Silesia, in 1854. This presumption, however, was found to be inaccurate, and it was shown that altitude had nothing to do with the disease. Happily so for all of us in the United Kingdom.

It is now demonstrated that any site on a suitable soil that is sufficiently elevated for good drainage, for prospect and for openness is suitable for a sanatorium, provided it is not too exposed.

What is a sanatorium? It is a residential school of hygiene, where patients in the early stages of tubercular infection are taught primarily to take the fullest advantage of open-air and sunlight, and to regulate their lives in certain ways—as to hours of rising, eating, resting, working, and sleeping, that disease may be arrested and eradicated, that vitality may be stimulated, that energy may be renewed, that the subject may come out a healthier, stronger, and better citizen, and when he comes out that he may exercise the influence of his first-hand knowledge and disseminate the lessons he has learned.

There is much to be considered in the selection of a site for a sanatorium. First of all, in considering competing sites, ascertain the average number of hours of sunlight to which they are subject and give preference to those with the best record; next learn the relative humidity of the air from local causes, and note that site which has least. I have already shown that a great altitude is of no importance. What is important is that the site shall be open to the winds of heaven, that is to say, that there shall be free currents of air all round and through the buildings, that there shall be abundant access for sunlight, and that it shall be cheerful.

To attain these ends the site should be elevated above the land to the south, and on the colder sides it should be protected. But here a note of warning is necessary. By many a dense belt of woodland quite close up to the building on the northern and eastern sides has been encouraged. That is a mistake. Trees should be cut back to a considerable distance, and avenues should be made through them to allow great rivers of air to sweep through and around the buildings.

Incidentally, I have referred to prospect. This is of great importance. Shut in by woods or other limitation of panorama, a feeling of depression is engendered which is greatly to the detriment of patients. Extensive views, on the other hand, broaden the outlook not only of the physical eye, but of the mental vision. The play of light and shade, the kaleidoscopic changes of the clouds, affecting the colours in trees and herbage; the movements of man and beast and bird, of distant ship and of storm—all are helpful, interesting and stimulating to the sick and weary.

Subsoil is of importance. Clay as a subsoil is liable to get waterlogged with resultant mists from evaporation. Gravel pockets in a general clay formation are not good because the subsoil water becomes stagnant and gives off noxious gases.

Loose sand on the surface is worst of all, the gritty brittle particles blown by the winds are great irritants to the respiratory organs. A rocky soil is best so long as it has a verdant supersoil. The green-sand formations are good, and pine trees flourish on it with their resinous perfume.

The buildings should be set well away from all dusty roads.

I do not propose to deal at any length with the important matter of sewage disposal. That is now so well recognised that it is unnecessary to dwell on it.

Walking exercise is essential to the treatment of patients, and a considerable area of site is required for exercise where there is no open country with public commons or uplands. In any case, however, there should be an ample area for agricultural and other manual work.

This treatment is superseding the older treatment where patients were allowed to idle the whole day and to be fattened up. The sanatoria which pursue the other course, of providing and initiating the desire to work, not only produce the best cures, but are doing a great economic service to the patient and to the community. I would commend to your notice the results at Frimley under the able and untiring direction of Dr. Paterson.

The recently published report of the Royal Commission has settled, in the affirmative, the question so long in dispute, as to whether tuberculosis could be communicated from cattle, and it would appear to be advisable that every large sanatorium should have its own cows, whose milk should be under constant analysis by the medical staff.

Coming now to the type of the building itself. Much has been said and written as to the relative advantages of single and multi bed wards, of isolated huts and congregated rooms.

Single huts are reasonable where few patients have to be treated. The one room habitation is primitive, whether it be of wattle, of canvas, or of boards, but if a large number of people are to be housed, fed and supervised, and are to have the amenities of prospect and open surroundings, their huts would cumber the ground, and their abodes must be brought together so to leave the necessary open spaces. This eventuates in a large building, or may be series of buildings where apartments for patients are convenient of access from the administration, where baths for washing and for hydrotherapeutic treatment, and sanitary accessories may be disposed for general convenience, and where drainage may be concentrated and minimised.

If this be admitted as the necessarily practical development of the aggregation of sick persons, as in its essence it accounts for the formation of towns, then I think it will be fair to say that public sanatoria which have to deal with the masses should be started on the lines in which, as they become larger, they must develop.

*** Abstract of a paper read before the Congress of the Royal Sanitary Institute at Belfast by Mr. Edwin T. Hall, F.R.I.B.A. (Fellow).**

Practically all the sanatoria dealing with any considerable number of patients abroad or at home are on the concentrated principle. Nordrach is an exception, but that was a pioneer institution, is for paying patients, and is a colony of several houses which have been absorbed or built as the number of patients increased.

There are other artificial villages deliberately designed for paying patients where the house is large enough for a family or two. Of such is Montigny in the north of France.

These, however, are not the normal sanatoria.

It would now appear to be desirable to consider some details of the planning. Should each patient have a separate room, or should 2, 3, 4, 8, 10, or 20 be put together?

Dr. Bulstrode, in his encyclopædic report, says:—

"It may, perhaps, be accepted that a separate bedroom is desirable where economy is a minor object, and that in any case there should be a certain amount of separate accommodation available for cases obviously requiring it."

In the various institutions which I have described the sizes of wards varies considerably.

At Falkenstein	there are	1 and 2 bed wards.
,, Reppertshain	,,	1 and 4 bed wards.
,, Stockholm	,,	8 bed wards.
,, Osterasens	,,	1, 2, 4, and 6 bed wards.
,, Kronopark	,,	1, 2, and 4 bed wards.
,, d'Angicourt	,,	2, 3, 5, 8, and 12 bed wards.
,, Hauteville	,,	1, 2, and 3 bed wards.
,, Frimley	,,	1, 2, 3, and 4 bed wards.
,, Northwood	,,	1 and 10 bed wards.
,, The King's	,,	1 bed ward.
,, Crossley	,,	1, 2, 4, and 6 bed wards.

The objections to multi bed wards are that one patient coughing disturbs all the others, and those who are bad depress those who are recovering. On the other hand, two or three patients together are company for one another, and among the poor used to such companionship, this comforts them. I feel sure, from my own investigation and from conversations with medical superintendents, that the large majority of rooms should be single bed, but that a few of 2, 3, and 4, perhaps 5, may be of advantage; large wards are to be deprecated.

As to cubic space per bed, when it is borne in mind that in a well-designed sanatorium the rooms are practically in the open air by means of through currents, I believe that the cube need only be such as to ensure ample space on the floor for the necessary furniture, and for patient, doctor, and nurses, with a reasonable height for comfort. The large cubes are wasteful. In single bedrooms 1,300 cubic feet is ample, while in rooms with two or more beds a much lower cube may be safely adopted.

Rooms should be flooded with light, and the windows, all made to open, should be of large area and carried up to the ceiling. On the inner wall there should be large openings, and on the opposite side of the back corridor there should be corresponding openings, so that the air may be constantly changed in every part of the wards.

With rare exceptions there should only be one row of bedrooms on one side of a corridor.

Having endeavoured to lay before you general principles of design and arrangement, I will conclude by asking your consideration of the lines on which sanatoria for the multitude should be designed.

It is manifest that cost is an element of great importance when large numbers have to be dealt with; that the prevention of fire is another. The cost per bed varies naturally in relation to accessibility of building material and cost of labour. Sanatoria in England, built of brick and stone as distinct from temporary wooden structures, range from £350 to £1,000, and it is said in one case to be nearer £2,000 per bed.

In cases where local material is not available, when the distance from a railway is considerable, and where the institution is a large centre, self-contained, perfectly equipped and built on up-to-date hospital lines, providing its own water, electricity for power and lighting, its heating and hot-water installations, its laundry full of machinery, engine and boiler-house, kitchen, &c., fitted with labour-saving plant, ovens, &c., stores, recreation-room, workshops, research laboratories, mortuary and post-mortem rooms, an elaborate system of drainage, residences for medical and nursing staff, servants, gardeners, &c., I do not think £500 per bed is excessive. These central institutions are necessary, and fill a definite place. But the sanatoria under the Insurance Bill cannot be of the same elaboration. They ought not to be of boards (that material is far too dangerous in a wooded district), but may be, *pace* all by-laws, of a permanent character, one storey in height, with walls and roof three or four inches in thickness, without elaborate foundations and all the cost these entail.

CALCULATIONS FOR RETAINING WALLS.

(Continued from last week.)

16.—*Failure by Sliding.*

IN paragraph 12 we found that the wall was required to resist failure by crushing and failure by sliding. We have investigated the former; the latter is more easily understood. Fig. 9 represents a box on wheels. A tall man P_1 pushes it at A, a short man P_2 applies his strength to B, and they each separately find the same difficulty in moving the box. It is no easier for P_1 than for P_2 and *vice versa*. If the wheels were taken off this box the same argument would hold. No matter where it is applied it requires the same force to make the box slide over the ground. When we had wheels on it the box was easily moved the friction being small, but when the box lies on the ground there is considerable friction to be overcome.

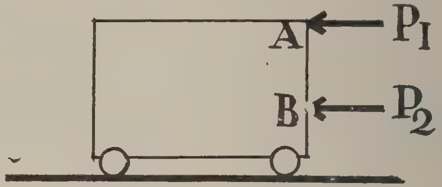


FIG.9

This at a joint in the wall will depend upon the weight of the wall, the area of the joint, and the material of the surfaces in contact, and is to be overcome by the outside force P. This might be written:—

$$W \times F = P$$

$$\text{therefore } F = \frac{P}{W}$$

F is a factor representing the friction of the surfaces in contact, and is called the coefficient of friction.

Its values are given in Table IV.

For common brickwork in mortar it is generally taken as 0.5. In the example worked in paragraph 15 for the joint AB:—

$$W = 1{,}680 \text{ lbs.}$$

$$P = (19.5 \times 5) + (15.6 \times 5.) = 17.55 \text{ lbs.}$$

$$\text{and } \frac{P}{W} = \frac{175.5}{1{,}680}$$

$= 0.0105$ which is lower than 0.5, so that the wall is quite safe against sliding. In practice this figure is not allowed to exceed 4-5ths of the co-efficient of friction. This value is not approached until the angle which R makes with the horizon is less than 30°, and it is only necessary to make calculations for sliding when the inclination of R is less than 30° degrees.

Note, however, that this does not hold good at the point where the foundation rests upon the earth, as the coefficient is much smaller.

TABLE IV.

Co-efficients of Friction (Morin).

		F
Masonry and brickwork (dry)		0.6 to 0.7
Ditto	with wet mortar	0.47
Ditto	with slightly damp mortar	0.74
Ditto	on dry clay	0.51
Ditto	on moist clay	0.33

17.—*Failure by Shearing.*

When the wall is homogeneous or without joints the sliding will occur by one minute particle sliding upon the next, the material being said to shear.

If the wall taken in paragraph 15 had been built in Portland cement concrete the resistance to shearing at AB would be

$1\frac{1}{2} \times 1 \times 2.5$ tons $= 3.75$ tons. (*See* Table IV.)

which is greatly in excess of P, the force tending to shear the wall ($= P_1 + P_2$). It is sometimes convenient, when a retaining wall would fail by sliding, to build it in cement mortar.

The joint is then required to shear instead of to slide.

TABLE V.

Safe Strength of Cement Concrete in Tension and Shear.

Mixture	Tensile Strength at Three Months.		Shear in Tons per Sq. Ft.
	Lbs. per Sq. In.	Tons per Sq. Ft.	
1 to 4	60	3.8	3.5
1 to 6			2.5
1 to 8			1.75

18.—*Retaining Walls for Water.*

As the walls themselves are similar in construction whether they retain water or earth or resist wind-pressure it will only be now necessary to investigate the outside force P.

19.—*The Pressure of Water.*

One of the first laws of hydrostatics is that the pressure of water is directly proportional to the depth below the surface. A cube of some easily crushable material is placed below the surface of the water. The pressure on the sides of the cube can be measured. The pressure is the same on all the six faces of the cube, and is equal to the weight of the column of water immediately above the cube. If a sphere is used the pressure on all the surface of the sphere is the same, and therefore the pressure in all directions is the same, and is equal to the weight of the water vertically above the sphere.

20.—*The Thrust on the Wall.*

Fig. 10 represents the section of a rectangular wall retaining water. It follows from the paragraph 19 that the pressure at any point is equal to the weight of the water vertically above it and is normal to the wall surface. Then if p be made equal to h it will represent the pressure affecting the wall at this point. The ordinates (p is called an ordinate) of the triangle ABC will, therefore, represent the pressure at any point, BC being made equal to AB, and the triangle ABC will represent the sum of all these pressures, which sum is the total outside thrust on the wall.

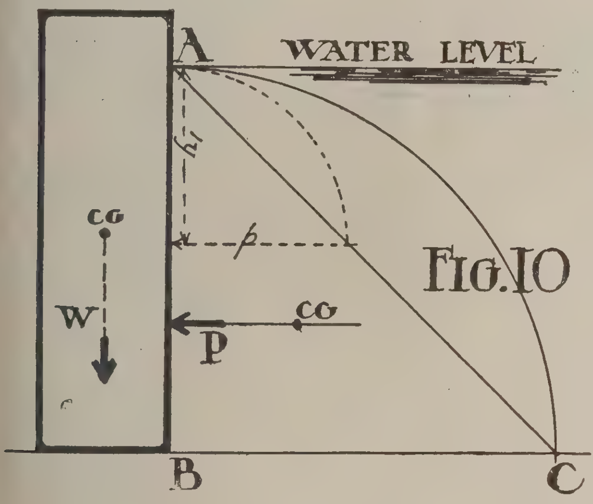


FIG. 10

This may be taken as one force P acting through the centre of gravity of the triangle ABC.

The magnitude of P = area of triangle in square feet × 1 foot length of the wall × weight of water per cubic foot (62.3 lbs.).

P being known, the stress on any joint may be calculated as shown for fence walls.

21.—*Walls with Sloping Back.*

The case of a wall with its inside face not vertical (as fig. 11) requires a little care.

The pressure at B or any other point is equal to the weight of water vertically above it, and being normal to (that is at right-angles to) the surface of the wall, will be represented by BC, where BC = AB. The triangle ABC will represent the sum of the pressures on the wall, and P acts through its centre of gravity as before, but normal to the face of the wall.

The overturning tendency, or moment of P, must be measured about O, the intersection of a vertical line through the centre of gravity of the wall, with the base of the wall.

To obtain the centre of gravity of a wall of this section set off on each side of the top a horizontal distance equal to the width of the base, and on each side of the base a horizontal distance equal to the width of the top.

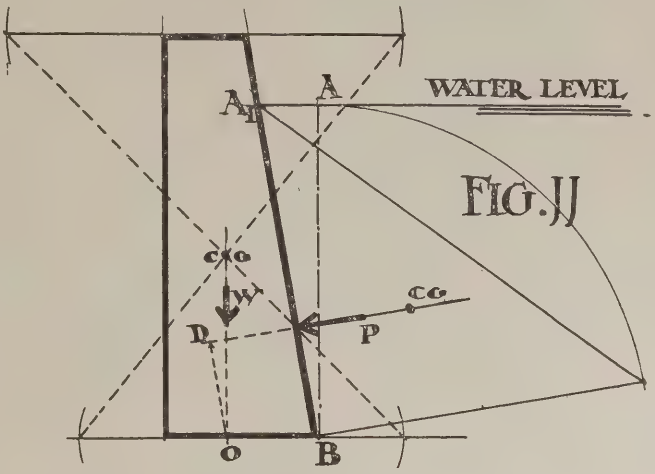


FIG. 11

The intersection of the lines joining the extreme points thus obtained is the centre of gravity of the wall.

22.—*Retaining Walls for Earth.*

The method of finding P, the outside thrust due to the pressure of the retained earth on a wall, is very similar to that explained in paragraphs 20 and 21.

We must first try and find out in what manner the retained earth will set up a thrust on the wall.

(*To be concluded.*)

ART SCHOOLS AND INDUSTRY.

THE report of the Departmental Committee upon the functions and constitution of the Royal College of Art and its relation to the Schools of Art in London and throughout the country was issued last week as a Blue-book.

The recommendations of the committee are as follows:—

(1) That the training of designers for the manufacturing industries should be specialised, and should be undertaken by provincial Colleges of Art, each of which, while continuing to provide a general education in art, should devote special attention to the needs of the dominant industry in its locality, and to this end should take steps to associate with its work representative manufacturers and artisans belonging to the industry;

(2) That these provincial colleges should be conducted as departments of colleges which deal with the practical and the scientific as well as the artistic sides of the dominant industries in their localities;

(3) That the provincial colleges should also be encouraged to undertake the training of teachers of art;

(4) That the training of teachers of art, wherever undertaken, should be conducted under conditions which will entail a higher standard of general or technical as distinct from artistic attainments, and should include an adequate pedagogic preparation;

(5) That universities should be encouraged to provide suitable degree courses for intending artists, architects, and teachers of art;

(6) That there should be a liberal provision of scholarships for industrial and other students of art, including part-time and full-time scholarships tenable at provincial colleges, which should lead up to further scholarships for advanced students tenable at approved places of study both at home and abroad;

(7) That scholarships for industrial students should be awarded upon conditions suitable to candidates actually employed in specific industries, and tenable for courses of study strictly related to those industries;

(8) That when a system of provincial colleges is established, the relation of the Royal College of Art to such colleges should be that of a school of advanced studies only, providing courses of one or two years' duration, adapted to the individual needs of its scholars and in close relations to the Victoria and Albert Museum;

(9) That, pending such a complete reorganisation of the college, the following improvements of detail should be effected in its existing organisation:—

(i) Steps should be taken to keep the college in closer touch with the general system of Schools of Art by the formation of an advisory council for education in art, which should include the visitors, together with representatives of industries dependent upon art;

(ii) The free studentships should be replaced by an increased number of national scholarships;

(iii) Students intending to become teachers should not be admitted after the age of 20, and should be required to show evidence on admission of a reasonable measure of general attainments;

(iv.) Students intending to become teachers should receive a proper course of professional training, including actual practice in teaching both children and adults by individual and class methods under expert direction;

(v) The professors should be associated with the examinations on which scholarships and exhibitions are awarded;

(vi) The outside professional work permitted to the whole-time professors should not, without special sanction, include teaching or educational organisation;

(vii) A month should be added to the length of the college term;

(viii) Opportunities should be afforded for combined work by all the four schools, and, if possible, for participation by the students in real work on public buildings or elsewhere;

(ix) Discretion should be taken to exempt students pursuing special branches of industrial design from the preliminary architectural course;

(x) The advanced architectural course should be widened by the inclusion of building construction, sanitation, and engineering;

(xi) More use should be made of the model in the school of painting;

(xii) Experts from outside the college should from time to time be invited to give lectures to the students;

(xiii) The system of rewarding students should be reconsidered, with a special attention to the value of foreign travel;

(xiv) A competent woman superintendent should be appointed for the women students;

(xv) A medical officer and dentist should be appointed;

(xvi) Careful supervision should be exercised over the lodgings of students;

(xvii) The arrangements for assisting students in finding employment after completing their courses should be systematised.

The committee in their conclusion say:—"The realisation of the developments foreshadowed above will, in our opinion, involve the provision of a new building. In view, however, of the transition period which we contemplate in the history of the college, we have made no definite recommendation as to the buildings; but we think it right to put upon record our opinion that the existing buildings are neither in dignity nor in convenience worthy of a national establishment, and that they call for some immediate expenditure to cure the more prominent defects referred to in the report.

"The Royal College of Art has done and is doing useful and important work, and although the development of the greater provincial art schools now makes it possible to relieve the college of some portion of its present duties, we anticipate that the changes we recommend will rather add to, than detract from, its importance. As a post graduate college in close touch with art schools throughout the country, it will have for the first time a well-defined position as the culminating point of the whole system of industrial art training in England."

ROYAL COMMISSION ON ANCIENT MONUMENTS IN WALES AND MONMOUTHSHIRE.

In May 1908 a Royal Commission was appointed "to make an inventory of the ancient and historical monuments and constructions connected with, or illustrative of, the contemporary culture, civilization, and conditions of life of the people in Wales and Monmouthshire from the earliest times, and to specify those which seem most worthy of preservation."

The Commission consisted of Sir John Rhys, D.Litt., F.S.A., F.B.A., Principal of Jesus College, Oxford, and Professor of Celtic in Oxford University; Professor Edward Anwyl, M.A., Professor of Celtic in the University College of Wales, Aberystwyth; Professor R. C. Bosanquet, M.A., Professor of Classical Archæology, Liverpool University; Mr. Robert Hughes, ex-Lord Mayor of Cardiff, President of the Cardiff Cymmrodorion Society; Rev. G. Hartwell Jones, D.D.; Lieut.-Col. W. E. Llewellyn Morgan, R.E.; Sir E. Vincent-Evans, Secretary of the Honourable Society of Cymmrodorion; and Mr. Edward Owen, F.S.A., Secretary.

The course of procedure which had commended itself to the Commissioners as likely to afford the best results in (*a*) the compilation of the inventory of the monuments, and (*b*) the preservation of the monuments, and which was outlined in their first report issued last year, has been found to achieve both ends more effectively than could probably have been attained by any other method.

The actual work was commenced in the county of Montgomery. The Secretary of the Commission was appointed to visit each monument, and in the period covered by the first report he had completed the inspection of about one-half of the monuments of the county.

The number of monuments to be inspected and included in the inventory proved so great, and the physical difficulty of reaching many of them so considerable, that it soon became clear that, if the work was to be continued on the scale and carried on with the thoroughness with which it had been begun, further assistance would have to be obtained. The authority of the Treasury was given for the employment of two assistant inspecting officers during the season within which outdoor visits are possible; and Mr. Alfred Neobard Palmer, of Wrexham, and Mr. George Eyre Evans, of Aberystwyth, two competent Welsh antiquaries, were accordingly appointed assistant inspecting officers, to work under the general direction of the Secretary.

The report of the Commission for the year 1910 states that these gentlemen were engaged throughout the late spring, summer, and early autumn of the year 1910 in the inspection of the monuments of the districts with which each is best acquainted. Mr. Eyre Evans assisted the Secretary of the Commission in completing the examination of the monuments of Montgomeryshire. This work has been accomplished, all the inventories have been printed, and the volume upon the monuments and constructions of Montgomeryshire is practically ready for issue. It is only delayed by certain difficulties in connection with the illustrations to accompany the letterpress. Mr. Palmer visited and described the whole of the monuments and constructions of Flintshire, and the work of preparing the inventories dealing with that county for the press will be undertaken as soon as the volume for Montgomeryshire has been issued.

Simultaneously, the monuments of Radnorshire were taken in hand by the Secretary, and satisfactory progress was made with the inspection of the antiquities of this difficult county before the work ceased for the winter.

It is hoped that the season of 1911 will see the inspection in Radnorshire, as well as that in the eastern half of Denbighshire, completed. Thus, at the end of the present year the Commissioners expect to have finished one-fourth of the most difficult portion of their great and interesting task.

The Commissioners continued their visits to the counties where the inspecting officers were at work, though their visit to Flintshire, coinciding as it did with the lamented death of His Majesty King Edward, was interrupted. In the month of September they visited Radnorshire, and had the advantage of seeing many of the characteristic monuments of antiquity in that county. They desire to express their thanks to everyone with whom they came into contact, whether gentlemen of private station, or those officially engaged in public administration. The study of the important monuments of those particular counties has, they say, prepared them the better to "specify those which seem most worthy of preservation." The Commissioners have endeavoured upon every favourable occasion to stimulate the interest of all classes in the monuments as the best means of preserving them.

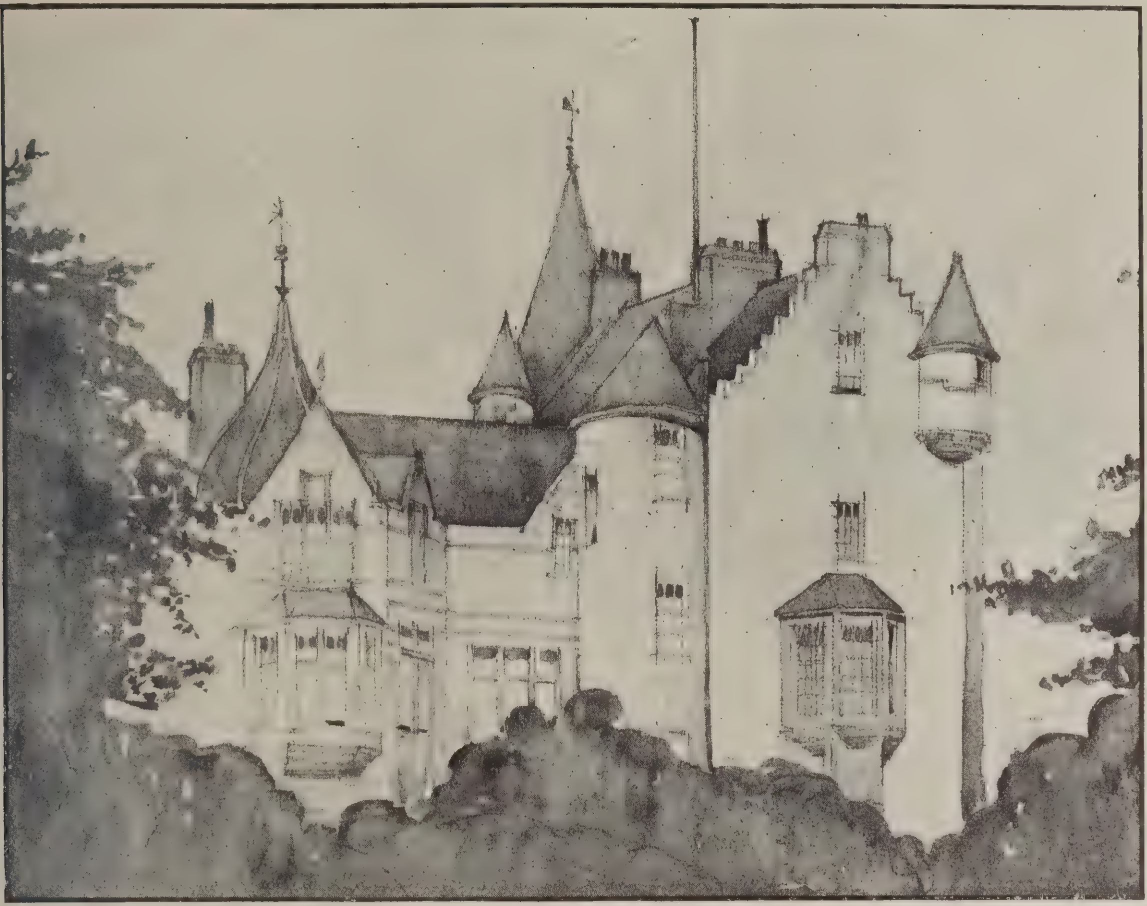
The Commission meets at regular intervals to consider the inventories prepared by its inspecting officers, and, owing to their zeal and activity, this is becoming a work of ever increasing extent and interest.

Only one sitting was held during 1910 for the purpose of receiving evidence upon the subject-matter of the enquiry. This was held in June, when Dr. Robert Cochrane, I.S.O., F.S.A., Inspector of Ancient Monuments in Ireland, gave the benefit of his experience in that capacity. The Commissioners repeat the invitation given in their first report, and again express the pleasure with which they will receive the testimony of anyone possessing first-hand knowledge of the monuments of his district, and desirous of making carefully considered suggestions as to their preservation.

As in the preceding year, the attention of the Commissioners was directed to several cases of actual or impending destruction of ancient monuments, to two examples of which they draw special attention.

Late in the year 1909 they were informed that certain

“THE ARCHITECT” STUDENTS' SKETCHING AND MEASURING CLUB.



CULLEN HOUSE, BANFFSHIRE. VIEW FROM SOUTH.—From a drawing by Mr. W. A. Robb.

In the beautiful seaport town of Cullen in Banffshire, near the parish church and crowning a steep rock, stands this magnificent baronial Manoir of Cullen. It is a striking example of a Scottish mansion house on the hollow square plan.

The approach and main avenue to the principal entrance leads over a bridge which spans the Deskford burn. The span of the bridge is in one great archway eighty-two feet wide. The entrance itself is dignified in the extreme, flanked at each side by two standing lions which bid defiance to the intruder. The doorway is richly moulded, having carved panels in low relief, the whole forming a striking contrast with the plainness and solidity of the surrounding masonry.

The house dates from the fourteenth century, but it has been altered and added to at various periods since then. In the old town records it stands entered that “Upon ye XX. day of Mrche 1600 yeiris the lairdis hous in Culane was begun and the grund cassin.” This laird was Walter Ogilvy, who married as his second wife Mary Douglas, and their arms and monogram appear several times on the walls of the house. The interior of the house has been almost entirely modernised, but is full of rich colouring in panels and tapestries, and contains elaborate carvings by Grinling Gibbons, also many fine portraits.

It is supposed that Charles II. visited Cullen on the occasion of his landing at Speymouth (about thirteen miles west of Cullen) on June 23, 1650, although his visit has not been recorded.

The park and grounds in which the house is situated are beautified with streams and lakelets, trim lawns and stately groves, and extend far into Rathven parish. A graceful temple, commanding a splendid view over the neighbouring sea, forms one of the architectural features of the grounds. Rising in the background there is the Bin hill, some 1,050 feet high.

This magnificent mansion house is the Banffshire seat of the Seafield family and is occupied at present by the Countess Dowager of Seafield.

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ancient remains on the slope of the Llanelwedd Hills, in the County of Radnor, and overlooking the River Wye, were scheduled for compulsory acquisition by the Brecon County Council under the Small Holdings Act of 1908. The threatened monuments consisted of several long, low mounds, which, from the available evidence, it is difficult to pronounce to be anything but sepulchral. Undoubted remains of prehistoric times are found upon the higher slopes of these hills. A public enquiry was held by the Board of Agriculture and Fisheries, at which the Commission was represented. The site was visited by the Commissioner of the Board of Agriculture and the representatives of the Commission. It was agreed, with the cordial assent of the Breconshire county authorities, that the mounds in question should be placed outside the scope of any order that might be issued. The owner of the land has since leased the lower slopes of the hill for quarrying operations, with conditions safeguarding the mounds within the area covered by the lease, but it is to be feared that such work, proceeding as it does in close proximity to the monuments, may lead to their disturbance.

The other example to which they call attention is the serious damage that is being done to the remains of the castle of Dyserth, Flintshire, damage that must result in the complete destruction of the ruins. The structure, which is of the period of Henry III., is built upon a hill extending east and west, the castle being placed at its western extremity. The northern side of the hill slopes gradually, and towards the south it falls abruptly a distance of about 200 feet. It is this precipitous face of the hill that is being quarried. In the course of his inspection of the Flintshire monuments, Dyserth Castle was visited by one of the assistant inspecting officers, who duly represented the destruction that had been already effected. The Commissioners at a later period made a visit to the castle, and were witnesses of the demolition then in progress. The parts of the structure which occupied the southern side of the hill have been swept away, and the only remains at present existing are the double towers at the east and west ends, fragments of the north curtain wall, and a few vestiges of the exterior defences. The quarry line takes in much of the interior quadrangle of the castle, and at the date of their visit it was only 55 feet distant from the north wall. The face of the rock cleared for quarrying operations extends beyond the line of the ruins on either hand, and is being worked along its full extent. The number of men then at work was small, so that the progress was not rapid. Any increase in the output, however, will accelerate the disappearance of the ruins. In any case, the complete destruction of the castle would appear to be only a matter of time. The owner of the property is Mr. Leonard Hughes, an artist, who has leased the castle rock to the Castle Limestone Quarry Company, of Mostyn. The Company holds the property by virtue of a lease for thirty years, granted by Mr. Hughes on March 7, 1903. No allusion is made in the lease to the castle ruins, but a provision is inserted that no limestone is to be worked "under or within fifty yards of any buildings now built for agricultural purposes upon the demised premises."

The duties and responsibilities which fall upon the owners of ancient edifices or constructions are often found to be accompanied by certain inconveniences, though these causes of irritation are, it is said in the report, generally borne with much patience and good feeling, for the sake of the memorial of which the possessor is generally proud to regard himself as custodian for the nation. There appears to be an impression in certain minds that this Commission possesses the power to step in and avert the destruction of an ancient monument, though its owner may have no desire to preserve it, and on more than one occasion the Commission has been assailed in the public Press for not exercising an authority it does not possess. It should be borne in mind that the Commission was called into existence for a specific purpose, as stated in the first paragraph of this report, and that it has no power to go beyond the strict limits laid down in the terms of reference. Deeply as the Commissioners have been moved by the indifference and carelessness of a Government department which has doomed the great prehistoric camp on Penmaenmawr to eventual destruction, and profoundly as they deplore the more rapid destruction of the privately-owned castle of Dyserth, they are unable to do more than draw public attention to these and such other regrettable occurrences as may be brought to their notice.

The Commissioners urge the desirability of Parliament establishing some machinery with power to intervene in order to prohibit the destruction of the historic treasures of the nation, which at present, they say, are too often sacrificed to selfishness and greed, or allowed to suffer from the consequences of ignorance and neglect.

THE ITALIAN MARBLE AND ALABASTER INDUSTRY.

THE British Consul-General at Florence, in course of his annual report, says:—The marble and alabaster commercial statuary, which constituted until lately one of the most flourishing industries in Florence, is passing, owing to the competition of Germany and France, through a very serious crisis. It must be remarked that most of the statues which are seen in the Florence shops are not marble but alabaster, which, while very transparent in its natural state, turns into a compact and slightly granulous matter through the process of baking, becoming similar in appearance to the Carrara and Serravezza marble. Not being, however, so hard it has the advantage of being more easily worked, with an economy of 50 per cent. in labour. White alabaster is only to be found in the province of Pisa. Formerly alabaster statuary was exclusively a Tuscan industry, the Florence speciality being statuettes and that of Volterra small articles such as letter weights, curios, &c. Now, however, Germany and France have established large manufactories for the production of alabaster statues, statuettes, &c., worked by machinery, the raw material being obtained from Pisa at low prices, thereby injuring by their competition the Florentine industry, notwithstanding the superior artistic production of the latter. I am informed that to counteract this evil a trust of Tuscan financiers is negotiating with the quarry owners to secure the monopoly of the alabaster, which, I presume, is intended to be to the advantage of Tuscan sculpturing.

In the annual report of the British Vice-Consul on the trade and commerce of the Port of Spezia, it is stated that Carrara marble is the principal article of export in the Spezia Consular district, though little or none is shipped at Spezia proper. A new branch of railway is in course of construction from the station of Aulla on the Spezia-Parma line to the northern side of the Carrara range, where it is believed there exists a better quality of marble which, owing to the difficulties of transport, has not yet been quarried. When this branch is completed it will be a comparatively simple matter to convey the marble to Spezia, though it is more probable that the greater part of the product will be sent on by rail through Parma to Milan, and thence to Northern or Central Europe. As Massa-Carrara, the seat of the marble industry, is in this district, the following table showing the statistics of the marble export for the year 1910, as published by the Carrara Chamber of Commerce, is given:—

Marble Exported during the Years 1908-10 *from the District of Massa-Carrara.*

Destination.	Total Exports (Overland and by Sea).* 1908.	1909.	1910.	Details of Marble Exported during 1910. In the Rough (Blocks).	Sawn (in Slabs).	Otherwise Worked.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
United States	47,431	53,891	58,140	52,535	4,253	1,352
Germany	27,945	25,234	30,071	26,819	2,935	317
United Kingdom	33,474	27,303	29,439	6,564	16,369	6,506
Argentina	15,870	20,995	26,671	7,073	18,573	1,025
France	21,824	24,695	25,893	25,664	—	229
Belgium	30,439	23,054	25,377	21,842	3,455	80
Netherlands	6,233	9,462	13,150	11,723	1,427	—
Austria-Hungary	10,072	9,626	11,257	3,980	6,980	297
Brazil	5,472	4,957	6,646	—	6,283	363
Egypt	7,028	6,062	6,124	—	5,154	970
Russia	2,440	3,357	4,803	—	4,803	—
Spain	5,234	3,885	4,039	4,039	—	—
Switzerland	4,539	3,872	3,981	3,948	—	33
Australia	1,719	2,489	3,634	—	3,103	531
Turkish Empire	2,137	3,050	2,674	—	2,674	—
British India	2,229	1,708	2,434	—	2,111	323
Tunis	2,519	562	1,344	—	1,344	—
Uruguay	455	683	1,081	—	967	114
Other countries	17,531	18,157	19,975	5,254	10,823	3,898
Total	244,621	246,043	276,733	169,441	91,254	16,038

* By sea, i.e. from the ports of Marina di Carrara and Leghorn.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

R.I.B.A. Committee on Reinforced Concrete.—Second Report.

SIR,—Page 16 of the above report contains the following paragraphs:—

"The most efficient disposition of the lateral reinforcement would appear to be in the form of a cylindrical helix, the pitch of distance between the coils being small enough to resist the lateral expansion of the concrete.

"Jointed circular hoops, as ordinarily made, are apparently not quite so efficient."

And methods by which the amount of reinforcement in columns of this type can be calculated are also given.

As both hooped and spiral concrete are covered by the well-known Considère patent we shall be glad if you will state this fact when making any reference to the new report in your paper. Thanking you in anticipation, we remain, yours faithfully,

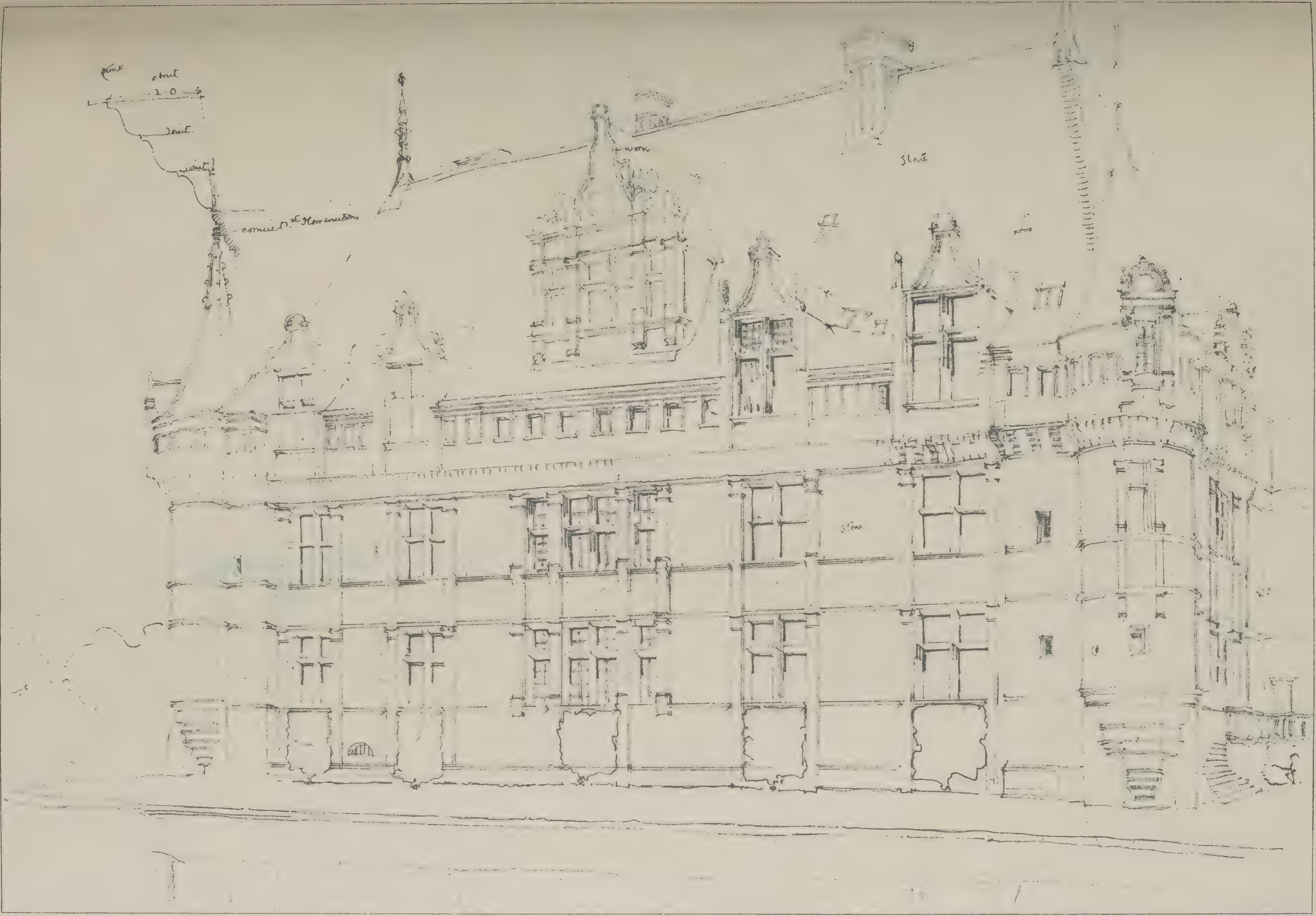
CONSIDERE CONSTRUCTION Co., LTD.
Herbert E. Hemburg, Assistant Manager.

King Edward Memorial.

SIR,—It would be interesting to know which way it is proposed that the statue in Green Park should face. The site has the same obvious disadvantage in this respect as the one first proposed in St. James's Park. If it faced north the back would be turned to the Victoria Memorial and to the fine approach to it up the rising Broad Walk. If the statue were turned the other way the effect on the loyal lieges passing along Piccadilly would hardly be pleasing—to say the least of it.—Yours faithfully,

E. B.

IT is proposed to erect a town hall for the borough of Dukinfield, Lancashire, and thus complete the plan of the present municipal buildings, which were built eleven years ago at a cost of nearly £18,000, a sum largely in advance of the estimate. The proposed town hall is expected to cost between £6,000 and £7,000.



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AZAY-LE-RIDEAU: CHATEAU FROM THE WEST.

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION, 1911: TOURS AND THE VALLEY OF THE LOIRE.

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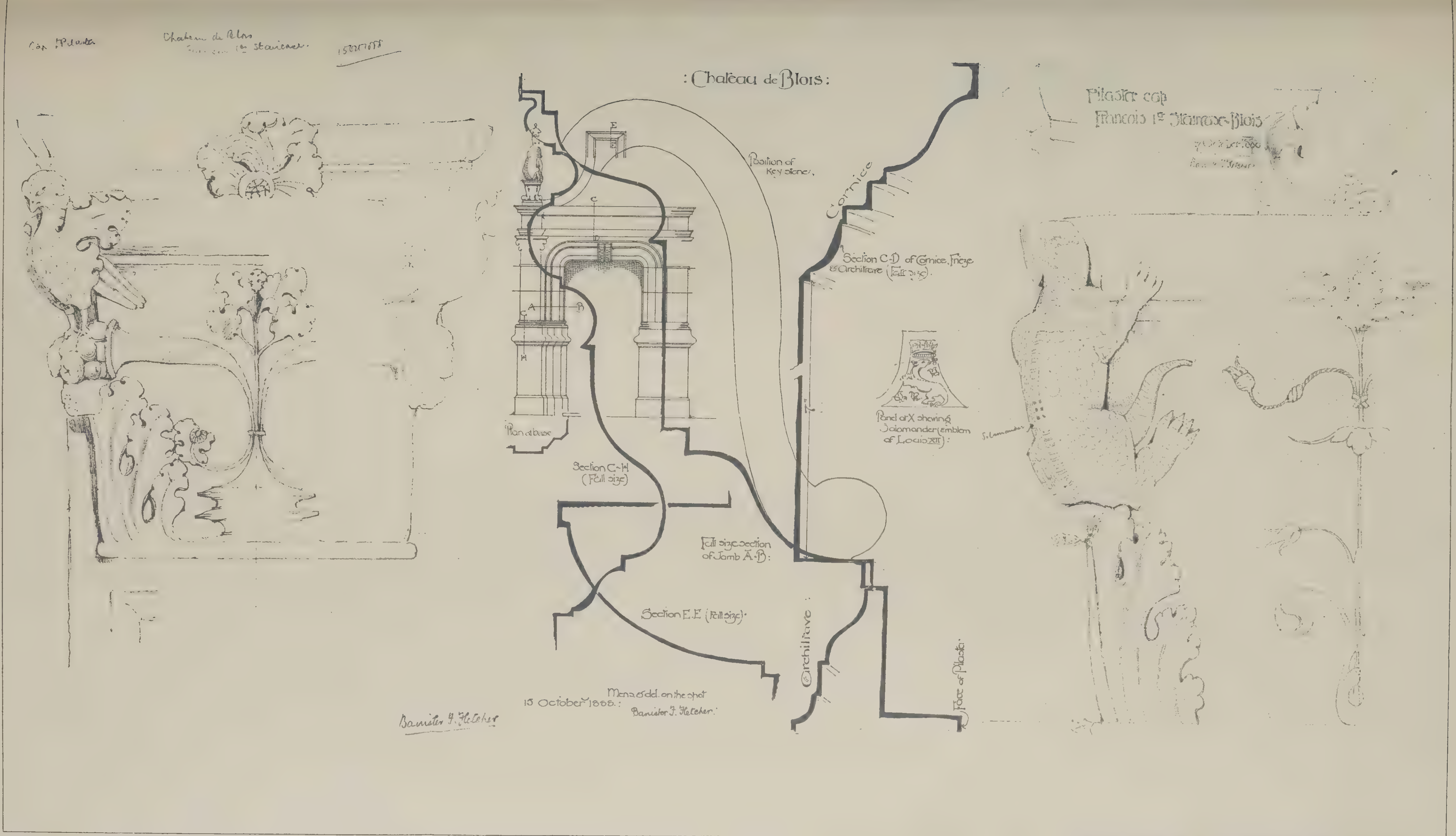

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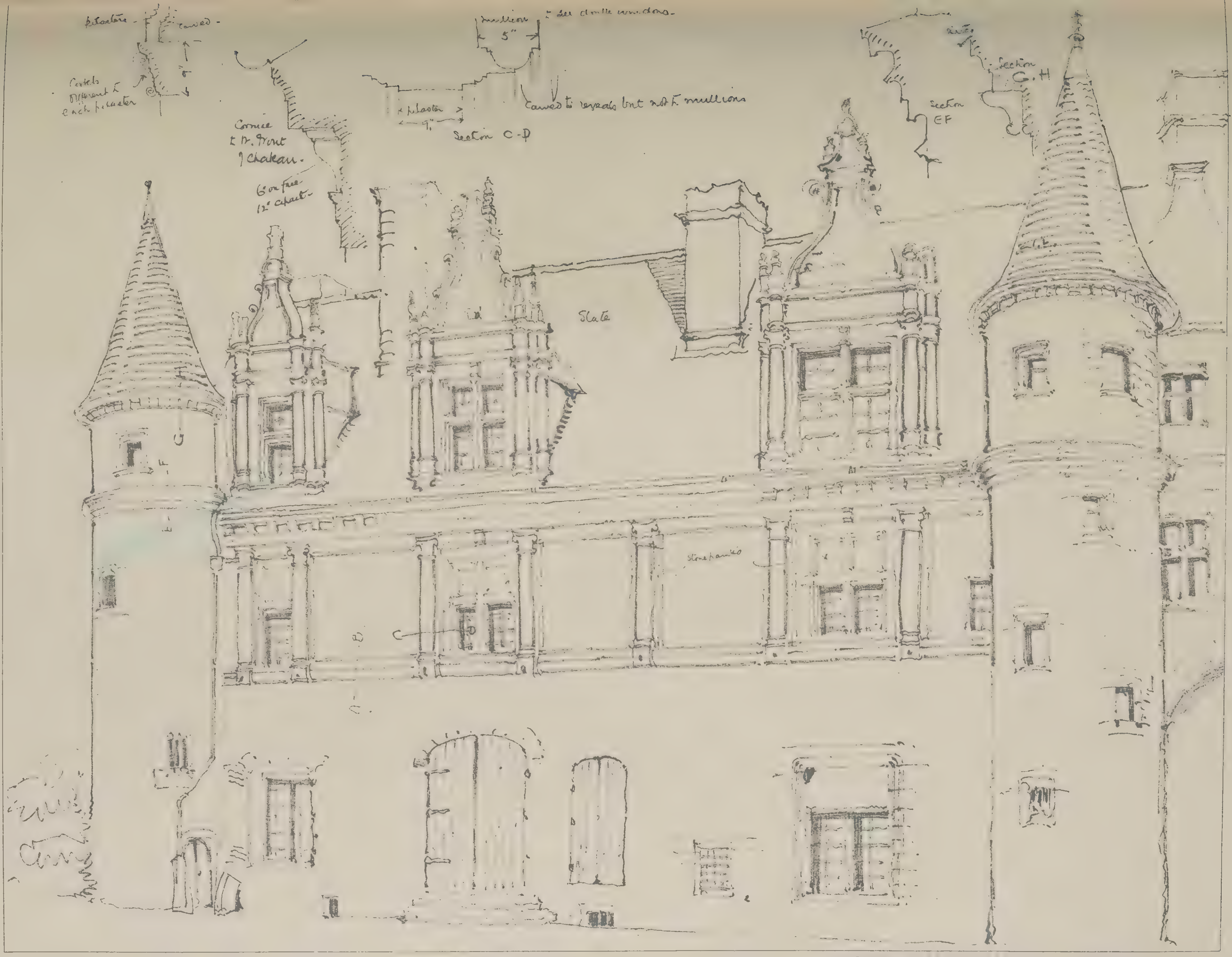

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AMBOISE CASTLE, PART OF EAST FRONT.

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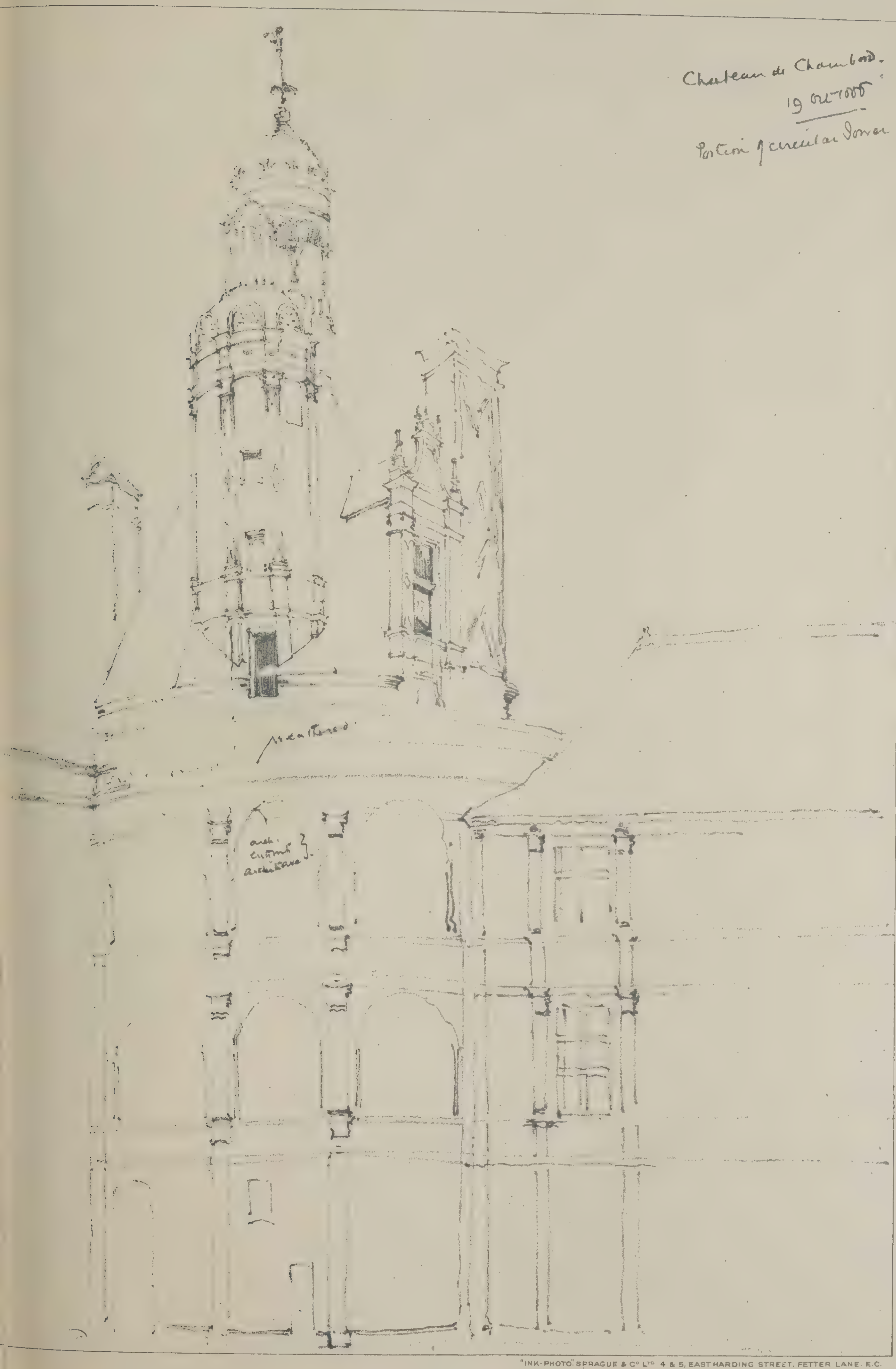

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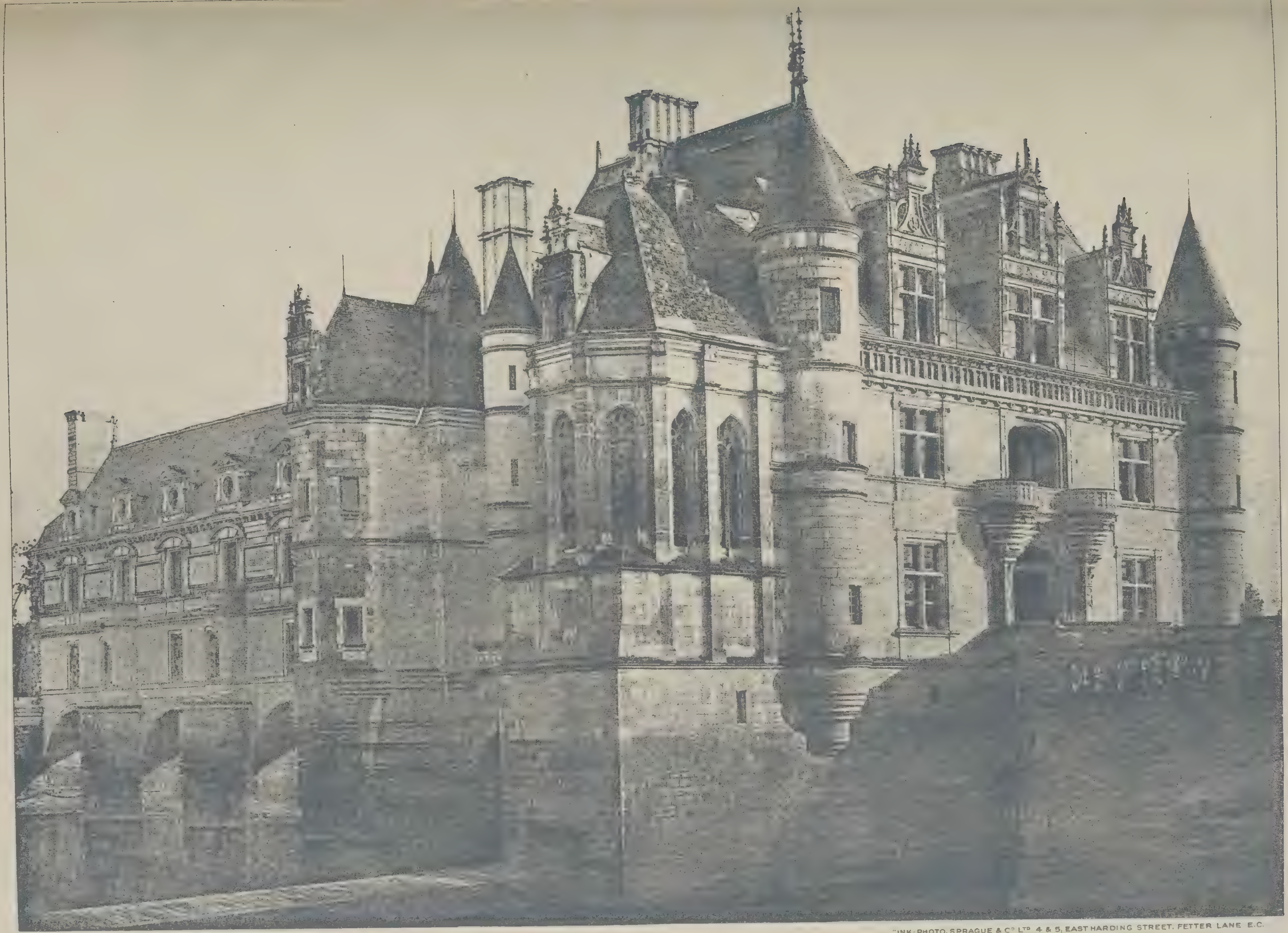

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CHENONCEAUX.

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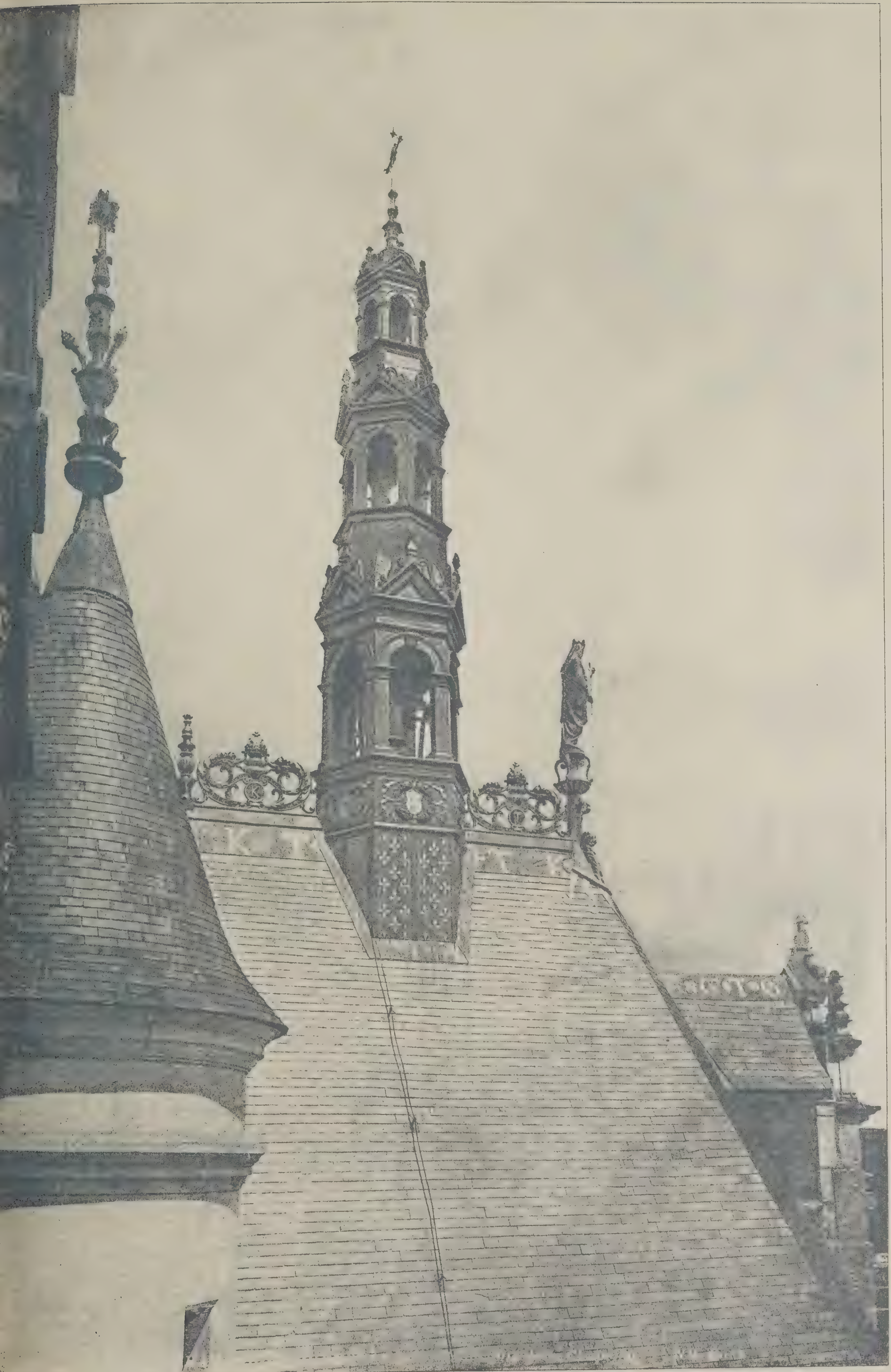

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CHENONCEAUX: DETAIL OF ROOF.

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION, 1911: TOURS AND THE VALLEY OF THE LOIRE.

The Architect.

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FORTHCOMING EVENTS.

Wednesday, August 30.

British Association for the Advancement of Science: Annual Meeting at Portsmouth (till September 6).

Thursday, August 31.

Guild of Architects' Assistants: Visit to Victoria Palace, Victoria, S.W. (Messrs. Frank Matcham & Co., architects).

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.—II.

MONDAY, August 14, might be considered as the opening day of the usual week over which the annual excursion of the Architectural Association officially extends, although, as we recorded last week, a fair amount of work had already been done in accordance with the programme. The heat experienced during Saturday and Sunday gave the official leaders of the excursion cause for fear that the arrangements in the programme would be too much for the capabilities of the horses of Blois, and hence an alteration—and a rather serious one—was determined. The visit to the Château de Chambord, the most magnificent of all those in the Loire district, was abandoned, and it was resolved to take the train to Romorantin and drive thence to the Château du Moulin, the second string on the day's programme.

Some of the more enterprising spirits of the party were not, however, satisfied with this curtailment and showed the official leaders a better solution by driving to Chambord and then joining the main body in the train at Mont, thus being enabled to see the Versailles of Touraine as well as to share in the regular proceedings. Romorantin, an important market town, has several interesting remains of old work and picturesque bits, but the time of the party was principally occupied by the customary French *dejeuner*, very good but very demoralising for the earnest student. Thus on this first official day the excursionists experienced some of the outstanding features of this year's outing, drastic alterations of programme and much time spent, we must not say wasted, on many coursed luncheons and on journeys, long in time if not in distance.

Thus the net result of Monday's programme was two and a half hours at the Château du Moulin, a comparatively small but charmingly picturesque example built of stone and brick in 1480 from the designs of Jacques de Persigny for Pierre du Moulin, who saved the life of Charles VIII. at the battle of Fornoue, and whose tomb in the church of Lassay is adorned with a fresco showing the château and St. Christopher.

The château has recently been restored under the direction of Mons. Génuys, and made habitable for the present owner, Mons. de Marcheville. The house and gatehouse are separate buildings on an island of considerable size surrounded by a deep moat and with circular towers and drawbridges have quite a military air. The detail, although showing some indications of Renaissance influence, is principally of late Flamboyant character. In the garden is a beautiful stone well-head of the fifteenth century.

Blois was left on Tuesday morning for a change to the second and chief headquarters at Tours, and on the way the train was left at Onzain station, whence the party walked across the somewhat decrepit old suspension bridge over the Loire to the village of Chaumont, and after the inevitable *dejeuner* they proceeded to the château. By an unfortunate contretemps it was overlooked in the preparation of the programme that Thursday is the only day on which the public are admitted when the family is in residence, so that it was only by a special act of grace that the party was admitted and shown over the château, and this favour did not extend to sketching and photographing or to a very lengthy stay in the park.

Chaumont was a feudal fortress in the tenth century, but the erection of the present château was commenced by Charles d'Amboise, who succeeded to the estate on the death of his father Pierre in 1473, and continued by Charles II. of Amboise on his accession to the title in 1481. Catherine de Médicis bought the château in 1560 but did not reside in it, preferring to force an exchange of it for Chenonceau on Diane de Poitiers, who herself abandoned it for Anet. The château passed through the hands of many owners and became more or less dilapidated, till about 1833 the Comte d'Aramon commenced a serious restoration and started the collection of furniture and artistic treasures which it now contains. Prince Amédée de Broglie bought the place in 1875, and has completed the restoration with the assistance of Mons. Sanson as architect and Mons. Margotin as sculptor. Built in the period of transition from Mediæval to Renaissance architecture the château now looks almost as new as when it was first erected, and thus gives us an opportunity of judging what the architecture of the end of the fifteenth century looked like without the adventitious effects of time. Those who do not admire it as its original builders saw it, raw and crude, can at least estimate to some extent how much of their admiration of old work is due to the original design and how much to the modifications of nature and time.

Chaumont consists of three irregular corps de logis flanked by machicolated circular towers, with steep conical roofs, and surrounding a courtyard opening on to a terrace on the side towards the Loire. Ornamenting the surfaces of the walls are the initials and symbols of Louis XII., Anne of Bretagne, the Cardinal Georges d'Amboise, Charles of Amboise and his wife Catherine de Chauvigny, and of Diane de Poitiers, as well as the volcanos, punningly alluding to the name Chaud-mont. It seems that the internal court was originally completely enclosed with a fourth side which was destroyed in the eighteenth century.

This château is one of premier rank in importance, both historically and artistically, and contains a fine collection of tapestry, furniture, carving, and other bric-à-brac, for the most part carefully chosen as illustrative of the art and life of France at the period of the best days of the château, and the time allowed to the excursionists was all too short. To add to the misfortunes of the day, the train by which it was intended to proceed to Tours did not call at Onzain that day, being the National Fête and Feast of the Assumption. The heat was terrific, and enforced idleness was not therefore altogether unwelcome; but one could not help feeling that a half-hour's sight-seeing was hardly a profitable record for a whole day in an A.A. excursion.

As usual, a railway journey and *dejeuner* filled up the first part of Wednesday, and then a visit to the château of Chenonceau was all too short for serious study after the formal inspection of the interior, with Philibert Delorme's bridge-gallery over the Cher. One wonders what would have been the effect of a great building on the opposite bank, with an intention of which Delorme is credited and without which the bridge and gallery is somewhat of an anomaly. Certainly he would not have felt fettered by any regard to the composition or detail of the château erected in the sixteenth century by Thomas Bohier and his wife Catherine Briçonnet. The gallery and stables which Delorme erected for Catherine de Médicis clearly show his independence of the earlier work. This, too, is free from any subservience to the still more ancient château of the Marques family, of which only the keep now remains, or to the thirteenth century substructure on which Bohier raised his house. Well grouped and picturesque as is this latter, it is in the character of its environment that lies the unique character of Chenonceau. The interior, well restored, has much interesting work in Bohier's construction. Delorme's gallery is internally no more than a fine corridor.

From Chenonceau the excursionists drove to Amboise, whose picturesque situation, towering above the town and the Loire, was discounted by the rigid prohibition of sketching and photographing within the precincts of the château.

Amboise is of very ancient history, dating back to the time of St. Martin in the fourth century, but it was not till 1434, when Charles VII. added it to the royal domain, that it began to play any important part in French history. In the struggles between the Guises and the Huguenots it became of premier importance.

The gem of the buildings now existing is the small chapel of St. Hubert, built by Charles VIII., and noteworthy besides as containing the tomb of Leonardo da Vinci, who was there buried in 1519. There is much to be seen of interest in the town of Amboise as well as in the château, but the time at the disposal of the excursionists was far too short for its full enjoyment even by the unfortunate members of the party who missed the train to Tours.

(To be continued.)

NOTES AND COMMENTS.

The Special Commission of the British Fire Prevention Committee, which has been spending a week in Paris studying the local fire protective arrangements under the guidance of the French Government, has been much impressed by the precautionary regulations and fire service organisation at Mons. Lepine's disposal. The latter—who in his capacity as Prefect of Police and head of the fire protective departments of the French capital accorded the Commission the closest personal attention, entertaining them on two occasions at luncheon and accompanying them to many of the institutions visited—is, however, anxious to adopt the methods of the British Committee on the fire preventive side and gave frequent public expression of his appreciation of the international utility of their work. The Commission, which comprised Mr. Edwin O. Sachs, F.R.S.Ed., chairman; the Earl of Londesborough, K.C.V.O., member of Council; Mr. Marsland, honorary secretary; Mr. Folker, honorary treasurer; Mr. J. Herbert Dyer, member of the Executive; with Lieut. Spencer, R.N., and Mr. E. Boyce-Podmore attached, visited all the principal fire stations, saw numerous drills, exhibitions, displays, &c., and inspected a very large number of public buildings and works, including the Opera House, several playhouses, cinematograph theatres, the great electric power houses, water reservoirs, gasometers, &c. They were also present at the parade of 15,000 members of the French provincial fire service which took place during their stay, and which was reviewed by the leading Government officials of the Republic concerned in matters of fire protection. Further, they attended the Congress of the French Fire Service Federation and visited the ambulance stations and flood stations of the Seine. A detailed illustrated report of the Commission's visit to Paris will be prepared for the use of the authorities at home, but a number of data on the work of the British Fire Protection Committee are also being prepared to supplement the particulars already presented for the use of the French authorities as a basis for the proposed organisation of a similar body for France. The Special Commission gave a formal luncheon to their hosts at the Hôtel de Crillon, and were entertained on various occasions to dinner by the local authorities and the fire service organisation.

At the Congress of the Royal Institute of Public Health held at Dublin the peculiar conditions of that city as presented in the opening address of Mr. P. C. Cowan, M.I.C.E., D.Sc., to the section over which he presided are of a heart-breaking character to the sanitarian. He stated that in Dublin more than one-third of the total number of families in the city live in single-roomed tenements, and the sanitary condition of many of these is deplorably bad. Dublin is much disfigured by the existence of many derelict building sites on which old houses have been allowed to fall into ruin. With respect to them Mr. Nicholas J. Synnott, whose writings on housing questions are of much interest and value, says: "An enormous number of condemned houses in Dublin have remained unrepaired and untenanted. Experience has shown that, even under the special compensation clauses of the Housing of the Working Classes Acts, the cost of acquiring these sites is prohibitive, and prevents rebuilding except at a loss. Where houses are condemned the sites are generally useless, or are not, in fact, used by the owner. I suggest that it is demanded by public policy, and would not be unjust to the owner of condemned property that if, after reasonable notice, he neither repairs nor rebuilds in accordance with municipal requirements, the law should allow the property to be sold by public auction, and the proceeds paid into Court or apportioned amongst the owners or persons interested. Private builders or artisans' dwellings companies would then probably acquire the sites at figures which would give a remunerative return, and the owner would have even less ground of complaint than the owner of condemned food, which is subject to the more rigorous method of confiscation."

Dr. Cowan referred to the suggestion of Professor Geddes that gardens might be formed on a number of derelict spaces in Dublin, and a movement is on foot to carry out this suggestion. It is quite likely that for some time the gardens might be badly treated, but ere long the people would take an interest and delight in them, and the street children would soon cease to damage what would, in effect, be their gardens. The experience of Belfast and Folkestone showed that open public gardens were quite safe from wilful damage.

Councillor James Vaughan, chairman of the Public Health Committee of Dublin Corporation, in a paper on "The Housing Problem in Dublin," dealt with the question of insanitary and slum property, and summarised his views by urging the following recommendations:—1. That fresh legislation is required in order to check decay in cities, and to impose on middlemen and ground landlords some of the expense of re-modelling slum property. 2. That all housing schemes should, as far as practicable, deal only with the housing of the very poor. 3. That local authorities of themselves cannot economically provide sufficient housing accommodation for the very poor. 4. That it is not only desirable but necessary that in all cities having slums, and where housing accommodation for the very poor is limited, that a Towns Improvement Trust should be formed by the wealthy and representative citizens. 5. That a Town Planning Act is required for Ireland.

The Pennsylvania Society has issued a small but interesting brochure on the church of Allhallows, Barking, in connection with the placing in that church recently of a memorial tablet to the memory of William Penn, whose baptism is recorded in the parish register as occurring on October 23, 1644. The brochure is illustrated with photographs of the interior of the church and of the bronze tablet designed by Messrs. McKim, Mead & White.

The Land Union has issued the following advice to property owners: Provisional valuations are now being served in considerable numbers throughout the country. The values shown are intended to be the basis for levying all the new duties on land and property introduced by the

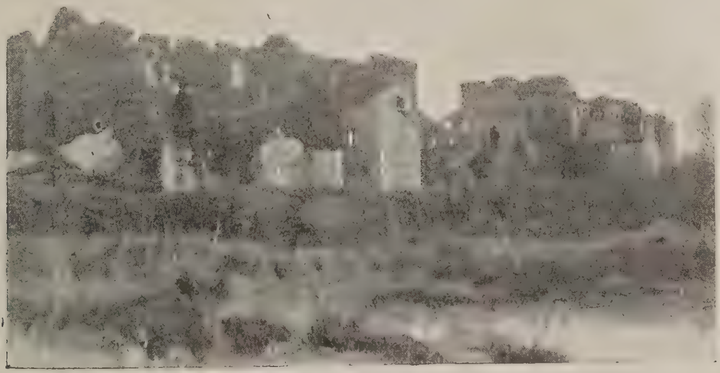
Budget of 1909, and the avowed object of the valuation is the future nationalisation of the land by means of the taxation of land values. Under these circumstances property owners are strongly advised to scrutinise carefully the valuations served upon them, as, after the expiration of sixty days, unless an objection is lodged, the values will be fixed against them for all time. Owners in doubt should communicate with their professional advisers, with the hon. secretary of any local branch of the Land Union, or with the secretary of that organisation in London at St. Stephen's House, Westminster, S.W.

THE ROYAL ARCHÆOLOGICAL INSTITUTE.

(Concluded from last week.)

THIS week we bring to an end our account of the Summer Meeting of the Royal Archæological Institute, which opened at Cardiff on Tuesday, July 25. For the second part of the programme Tenby was used as the headquarters. Monday, July 31, was devoted in the morning to Tenby and in the afternoon to Caldey Island. On the following day Carew Castle, Monkton Priory Church and Pembroke Castle were all visited, and of all these an account was given in our issue of last week. After lunching at Pembroke a drive in the motor-cars of half an hour brought the party to

LAMPHEY PALACE.



LAMPHEY PALACE.

There is not very much to be seen and not very much to be said about these ruins. Mr. E. Laws, F.S.A., who had come from Tenby to describe them, confessed that though he was particularly interested in the building, he was also particularly ignorant concerning it. Tradition divides the Palace into two periods, viz. the east block attributed to Bishop Gower (1328-1347) and the west block to Robert Devereux, Earl of Essex. There was, however, an earlier episcopal palace here or hereabouts, as also a later period of importance. When Gerald de Windsor in the twelfth century was besieged in Pembroke Castle by the Welsh he caused a letter to be dropped at the Bishop's house at Lamphey. Mr. Laws was of opinion that the earliest building stood behind the existing main blocks. It was one of the seven episcopal residences in the large diocese under the Bishop of St. Davids. Here the Earl of Richmond, later Henry VII., was entertained after his arrival at Milford to claim the throne and to take the field at Bosworth. Henry VIII. put pressure on the first Protestant Bishop to give up the palace, and on this being done he sold it to Lord Hereford, father of the first Lord Essex, Queen Elizabeth's favourite. It was the residence of the three Devereux, Earls of Essex. These noblemen were extremely popular, and it is probable that it was in consequence of the political views held by the last Earl that when the Civil War broke out Pembrokeshire was found to be the most seditious county in Wales, and more like English corporations.

Mr. W. H. St. John Hope, M.A., in discussing the building from a less historical and more architectural point of view, took occasion to repeat a protest which he had made on more than one previous occasion. He rightly said that it was impossible to describe the Palace without a liberal use of the knife and the axe, so cloaked was it in a green curtain. It was, he added, possible to have Virginia creeper anywhere; but there was only one Lamphey Palace. As to the buildings themselves, he remarked that their arrangement was a little obscure, because the curtain wall had been pulled down. There was no doubt that it was originally a very nice house, surrounded by a deep ditch. The small square gatehouse now standing isolated in the middle of a large garden is remarkable for a peculiar treatment of the parapet similar to that in another part of the buildings. The same treatment is to be seen at the episcopal palace at St. Davids and at Swansea Castle. It appears to have originated with Bishop Gower, who built the first about 1340, and rebuilt the second about 1330. The great hall could be accepted as unquestionably mediæval, though it is impossible to see the detailed features owing to the ivy and other creeper. It seems to have had a peculiar apartment on its upper floor. On the outside the windows inserted by the Tudor owners may be seen. On the ground level of another building is a very fine cellar-like apartment, with a roof having cross ribs. It is now the preserve of a bull of awe-inspiring aspect. Above it was a series of rooms, as is indicated by the presence of three fireplaces. The chapel (1509 to 1523) is another detached building of two storeys, and is noteworthy for the charming tracery in the six-light east window. This is the most prominent architectural feature visible. Those who go to Lamphey Palace with an enthusiasm for creeper will be amply gratified; the architect and archæologist must seek as best he can for the constructional features underneath. The owners, it must be explained, are careful to keep everything tidy, and are, no doubt, acting according to their lights in leaving the creeper in position. Its removal would undoubtedly have to be done with the greatest caution.

MANORBIER CHURCH.

If Lamphey Palace is overcovered with ivy and creeper, the reverse seems to apply to Manorbier Church, which was next visited. This building stands on an exposed valley side in a most uncompromising fashion, which is emphasised by the presence on the north side of the chancel of a tall square tower without a single buttress or other projection.

John Carter, writing in the *Gentleman's Magazine* in 1804, described it thus:—" The church in its exterior is rather singular, from a tower which rises between the body of the building and the chancel. In the interior the architecture is after the pointed manner, and is simple in the extreme, giving, in most respects, piers and arches without plinths, capitals, mouldings, or ornaments of any kind. The vault of the roof is one-pointed headway without rib or other decoration. Notwithstanding all this simplicity in masonry, yet it was not without charms, at least to me, who can receive as much gratification from an humble performance in this way as in a more elaborate work not presenting so much of the artless as the endeavour just spoken of. On the north side of the chancel, under a plain arch in the wall, is a plain tomb, also bearing the statue of one of the family (as it is generally understood) of Geraldus."

The skeleton architectural history of the church is as follows:—It originally had a twelfth century aisleless nave, the walls of which were pierced in the thirteenth century and aisles added. Considerable alterations were made in the fourteenth and fifteenth centuries. The north transept is of the fourteenth century and has a stone roof.

Diversity of opinion exists as to its ecclesiastical history. Some hold it to have been a monastic church enlarged and adapted to serve the requirements of a parish. Others contradict this, and argue that it was only served by a monastic establishment.

Manorbier Castle.

According to Richard Fenton, the historian of Pembrokeshire, Manorbier Castle remains "the most perfect model of an old Norman baron's residence, with all its appendages, church, mill, dove house, fish pond, and grove still to be seen and traced." It is believed to have been built early in the twelfth century by Gerald de Windsor, the first Seneschal of Pembroke, who allied himself to the Welsh by marrying Nesta, of Carew Castle, the daughter of Rhys ap Tudor, Prince of South Wales. The same warrior is credited with the erection of Pembroke Castle. Manorbier is also ascribed to their son-in-law, William de Barri. But little is left of Norman work, for the castle was mostly rebuilt at the end of the thirteenth century. Mr. St. John Hope said it was best regarded as a castellated house; and in that light it made a valuable and interesting comparison with similar edifices in England. The gatehouse (circa 1270) is curious, with its arrangement of internal buttresses and curtain walls. On the opposite side of the quadrangle is what appears to have been the main living buildings, including the chapel, great hall and kitchen. Originally the chapel stood on the ground floor; later it was altered to the room above, and a broad external staircase was erected. Mr. Hope hesitated to definitely commit himself to the precise location of the kitchen. Here again the archæologist is handicapped by the presence of weed and creeper. The castle is picturesque in itself and on a picturesque site. It stands in a broad valley, which runs down to the sea, and may possibly at one time have been washed by it. It would have formed an ideal stronghold for piratical lords.

MANORBIER CASTLE.

Manorbier Castle may not have played a great part in war, but it gained a niche in history when Giraldus Cambrensis, a son of the above-mentioned William de Barri, was born here in 1147. This Gerald the Welshman won fame if not immortality, not by the sword but by his pen. His two best-known works are "The Topography of Wales" and his "Itinerary," the latter being an account of his journey through Wales with Archbishop Baldwin, of Canterbury, preaching the Crusade. As a historian of Irish conditions, however, he is regarded as unsafe and prejudiced. Giraldus, by reason of his birth, was always a person of importance, but in spite of all his efforts he never succeeded in gaining the bishopric of St. Davids. He at least was always faithful to Manorbier, and proved by the coldest logic that Manor Pyrr was "the Paradise of all Wales."

Wednesday, August 2.

St. Davids.

The concluding day of the summer meeting was devoted to St. Davids. The train was taken from Tenby to Fishguard, and the rest of the long journey was made in motor omnibuses through surroundings strongly reminiscent of Ireland. The two objects of attraction were the Bishop's Palace and, of course, the Cathedral. Both these lie within the very extensive precinct which the Bishops of St. Davids had carved out for themselves and surrounded by a wall. In the middle of the east side is the gatehouse, with bold towers on either side.

The Bishop's Palace.

The Bishop's Palace is a fine group of ruins lying almost due west of the cathedral. According to Mr. St. John Hope, M.A., the cicerone, the precinct of St. Davids is unrivalled for picturesqueness, though for general interest it must yield the palm to Wells. Through the middle of it runs a stream called the River Alan, on one side of which was the palace and on the other the cathedral. The wall of the Close, which extends to a mile, dates from about 1330. Only one of its four gateways remains. It was erected by Bishop Henry de Gower (1328-1347). This ecclesiastic belonged to a noble family which had settled in the English-speaking peninsula of Gower. He seems to have been more of an architect than a politician, for during his twenty years of office he was conspicuous for his building activities and munificence rather than for his prominence in affairs of State. He has been called in consequence the Menevian Wykeham. His work on his cathedral came at a critical time. But it was in the erection of the palace close by that his genius had full scope. Here is the great arcaded parapet which is only to be seen, as already mentioned, at two other places. The following description of the parapet, by Mr. Philip A. Robson, A.R.I.B.A., appears in Bell's guide to the cathedral: "It consists of a series of arches, with a hollow ornamented by Gower's four-leaved flower carried down on octagonal shafts, which rest on corbels of considerable variety about two feet down the wall. Above the arcade is a corbel table carrying a projecting battlemented cornice. The battlements have extremely narrow embrasures and loopholes. The sills of the arcade are steeply slanted outwards. Great richness is obtained above the arcade from the various coloured stones employed. They are set in squares alternately purple and grey, in the voussoirs of the arches and the spandrils above them, and make a mellow and harmonious chequer-work which greatly adds to the character of the whole building."

The buildings were apparently ranged round three sides of a quadrangle. On the east side were successively a room generally accepted as a small chapel, the Bishop's Hall (about 60 feet by 23 feet) and its kitchen (about 26 feet by 23 feet). On the south side was the Great or King John's Hall (about 96 feet by 31 feet) and the west chapel. Of the domestic buildings on the west side little remains. The whole forms, as Mr. Hope remarked, an extremely valuable example of fourteenth century domestic architecture carried out on a big scale. The lay-out, as already indicated, was simple. The principal buildings occupied two sides, the third was given up to those of less importance, and the fourth was filled by a wall with the gatehouse. This disposition was curious, though paralleled by that of Wells; the latter was mainly built by Jocelin (1206-1242), who seems to have been much the same kind of bishop as Gower. The kitchen here stands between the two halls, and no doubt served both. Each hall was entered from the quadrangle by its own porch

[illegible]

and staircase. As usual the first floor was given up to the principal apartments, while on the ground floor were cellars or crypts which may have been utilised for domestic offices, as they are lighted by good lancet windows (once glazed), as well as for storing food at such times as the bishop and his considerable retinue chose to reside here. The vaults are of the plain barrel type without ribs. The building immediately adjoining the gatehouse, which is usually described as a chapel, was believed by Mr. Hope to have been rather the almonry. The kitchen was a curious apartment. It was evidently domed. During the last fifty years the great stone chimney collapsed, and the masonry now lies on the floor. The arrangement was similar to that at Fountains Abbey—viz. four fireplaces back to back in the centre. The Great Hall had at one end a withdrawing chamber and other rooms. In the south-east wall is a beautiful rose-window which, unlike all the other windows, still retains its tracery. Evidently a very considerable amount of decoration was lavished on the windows. Mr. Hope suggested that the range of buildings on the south side, and not those on the east, formed the bishop's apartments. A curious feature about the palace is the lack of accommodation for servants. But it has to be remembered that the attendants were accustomed to sleep on palettes of hay and straw laid on the floor of the Great Hall.

It is said that the ruinous condition of the buildings began with an unworthy successor of Bishop Gower called William Barlow (1536-1548). He initiated the work of destruction, it appears, by removing the lead from the roof to provide marriage portions for his daughters, who married five bishops. Another reason for this action to make the buildings so unhabitable was that the Government would accede to his proposal of transferring the see to Carmarthen and the episcopal residence to Abergwili. In the latter he was successful.

The Cathedral.

After lunch the party assembled in the choir of the cathedral, where Mr. St. John Hope gave a brief account of "this wonderful church." The plan,* he said, was in itself peculiar, because the east end now included so many additions that its original disposition had become almost obliterated. On this site stood the monastic church founded by St. David which was destroyed by fire in 645. Of the two others which followed no traces remain. The present building was begun in 1180 by Peter de Leiâ, the third Norman bishop, who died in 1198. It is therefore contemporary with the work at Wells of Bishop Reginald de Bohun (1174-1191). But whereas at St. Davids they rigidly kept to Romanesque, at Wells Early English was boldly used. A more accurate comparison is afforded by the ruined Lady chapel at Glastonbury. Of the church of Bishop Peter we have the entire nave and parts of the transepts.

What the east end was like must remain uncertain, for what exists now was not his work but represents a rebuilding which took place about twenty years after. Leiâ's Norman detail was then closely followed, though the arches were made pointed instead of round. Soon after the completion of Peter's work—*i.e.* in 1220—the central tower fell. Mr. Hope doubted whether this mishap would have done as much damage to the adjacent parts as is usually represented. One reason was that the tower being Norman would not have been carried to any great height. Probably the tower collapsed into the open space immediately underneath it and left the eastern arm practically untouched. While the necessary rebuilding was taking place the parishioners seem to have utilised the gateway to the south-east of the cathedral as a belfry, or rather erected a detached semi-circular tower adjoining one side of it. This would obviously be a more logical place for it than a campanile buried in a hollow.

Very soon afterwards the aisles were extended eastwards, first to the high altar and then about 40 feet beyond it, so as to form chapels. A cross piece was then erected so as to give a means of communication between these two projecting aisles and to allow of processions making a complete circuit. Next they struck out still further eastwards by adding a Lady chapel. As will be seen from the plan, this was by no means in accordance with the axial line of the cathedral, being nearly five feet to the south of it.

The presbytery was originally meant to be vaulted; but, like many other intentions in this building, this was never carried out. In the second quarter of the fourteenth century a great deal of reconstruction seems to have been begun under the great Bishop Gower. It included the south choir aisle, the pulpitum, and St. Thomas Chapel, now the chapter-house with the treasury over. This chapel corresponds in position with a large two-storeyed chapel at Lincoln, which was destroyed in the beginning of the eighteenth century. It may have served as a vestry, treasury, or as a storage place for the large stock of vestments. The arrangement of the imposing stone pulpitum is most unusual, and is only approached by that at Southwell, which has practically the same treatment of vaulting. This rood-loft was declared by John Carter to be the most perfect work of its class surviving. The pulpitum seen by the party at Ewenny Priory was different to that at St. Davids, for whereas the former has an arched opening each side and the altar in the centre, the latter has an altar on each side and the entrance to the choir in the middle.

St. Davids being a church of secular canons the arrangement of the choir is, said Mr. Hope, exactly what might be expected. The bishop sat on his throne on the south side as if at the head of his chapter. The stalls, with their fascinating miserere carvings, are believed to have been executed in the time of Bishop Tully between 1460 and 1480. The reigning sovereign of Britain holds the first prebendal stall here. It is marked by a small brass plate bearing the royal arms. The choir is separated from the presbytery by a so-called "sanctuary" screen. Mr. Hope clearly showed that this was not a sanctuary screen and was not in its correct position, and that it originally served as a fence screen to the pulpitum altars standing on the top of the steps across the first bay of the nave. It is now askew and is obviously too wide. The wooden screen has tracery of a simple but very pleasing character.

A curious feature of the cathedral plan was an open space or well left between the east wall and the passage connecting the projecting aisles. This was in the fifteenth century described as "vilissimus sive sordidissimus locus in tota ecclesia." Bishop Vaughan (1509-1522) took possession of it and converted it into a most beautiful Perpendicular chapel, which is known by his name though dedicated to the Trinity. To do this he filled in the three large lancet windows at the back of the high altar. It is probable he substituted for them a broad and low Perpendicular window above. At present the three original lights are blocked up, while above are a group of four lancets introduced by Sir G. G. Scott in his extensive works in the middle of last century, in the place of a decayed fifteenth century window.

The present unique nave roof is generally accredited to the Treasurer Owen Pole (1472-1509). Mr. Hope said that the elaborate wooden carving, and particularly the pendants, showed traces of Flemish Renaissance work such as is not generally seen in this country until the end of the sixteenth century. But he was inclined to date this example about 1530.

For its monuments alone St. Davids would be remarkable. These include the shrines of St. David and St. Caradoc on the north side of the choir. It was suggested that the latter was moved to its present position from some other part of the building. It is obviously a piece of patchwork. Particular attention was drawn to four unusual effigies of clerks in holy orders clothed in amices, albs, crossed stoles, and dalmatics. The presence of the dalmatics instead of the ordinary chasubles may be taken as proof that they commemorated archdeacons. Bishop Gower's tomb is under the pulpitum.

The College of St. Mary was founded jointly by John of Gaunt, Duke of Lancaster, his wife Blanche, and Bishop Adam Houghton in 1377. The ruins stand to the north of, and parallel to, the nave, from which it was separated by the square cloister, of which nothing is now left. There are considerable remains of the large hall over a subvault.

St. Davids appeared in Vol. lxxvi. of *The Architect* cathedral series.

At the conclusion of the visit the party were entertained to tea by the Dean of St. Davids. This marked the conclusion of a summer meeting which was greatly enjoyed by all who took part. Everything went off without a hitch if we except two trains which were intractable to the best of organising secretaries.

Our plans in this and previous issues recording the visit are taken from the programme issued by the Royal Archæological Institute, and we are indebted to the courtesy of Mr. G. D. Harding-Tyler, M.A., F.S.A., the secretary, for permission to use the blocks. For our small photographic views we have to thank the Great Western Railway Company, who had them prepared for their interesting booklet "South Wales: the Country of Castles."

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* See Supplement, page 13.

THE DESTRUCTION OF CEMENT AND CONCRETE.

(Contributed.)

THE two most important building materials at the present time are steel and Portland cement. There is no subject upon which a greater number of researches—many of them very expensive—have been carried out than the physical properties of steel. During the last half century many scientific papers have appeared in the Proceedings of the Royal Society, the Physical Society, the Institutions of Civil and of Mechanical Engineers, the Iron and Steel Institute, &c., in this country; while in Germany and America the experimentalists have been equally active. The engineering press of all countries have frequent references to the work which is being done upon the elasticity and strength of steel and its alloys. An exactly opposite state of affairs exists with regard to Portland cement. There has been a remarkable laxness in the study of this important material. There may be certain reasons, of which the following seem feasible.

In the early days of the Portland cement industry the substance was used almost entirely for structures, such as foundations, where it was constantly damp. Under these circumstances it did well (as we should now think), and the somewhat rule-of-thumb designer of the period very naturally did not worry about the properties of a material which always answered well in practice. The confidence with which it came to be regarded was possibly, in an unthinking manner, transferred to conditions where cement is less stable.

Changes in Volume of Concrete.

This has been determined with considerable accuracy for the case of change due to temperature. For unit length it may be taken as 0.0000055 per degree Fahrenheit. But there are other changes due to the chemical processes of setting and hardening. These are barely mentioned in even the more important treatises. Other variations, due to the wetting and drying of the concrete, exist, but the fact is practically unknown, and there are certainly no quantitative measurements. Professor Alfred H. White, of the University of Michigan, has made some experiments, the results of which he has recently (July 1911) communicated to the American Society for Testing Materials. Before dealing with his tests it will be wise to mention a few results to be found recorded in the very brief literature on the subject.

The classic experiments of Bauschinger, published in 1879, seem to be the starting point. He made quantitative measurements of the change of volume of cements while hardening takes place. He tested eight different cements, made into small cubes of neat cement and 1.3 to 1.5 mortar. One set of cubes was kept in water and one in air. The changes in the length of one side were observed for sixteen weeks. Schumann (1881-9) made expansion measurements on blocks not only of neat cement and cement mortar, but also on blocks of building stone. Gary (1899) published the results of tests on ten Portland cements, which included measurements of expansion bars of neat cement and of 1.3 mortar placed in water. No tests were made of bars in air.

Campbell and White (1906) published a study of fifty-six expansion bars of neat cement, which had been under observation for five years. Many of these were pathological specimens of unsound cement containing free lime and magnesia. Their experiments showed as much as 0.19 per cent. expansion with sound neat cement kept in water for five years and a shrinkage as much as 0.39 per cent. with bars of sound neat cement kept in air. A reliable and inexpensive micrometer, together with a satisfactory method of inserting the glass plates in the expansion bars, were described in the communication made by these two investigators to the *Journal* of the American Chemical Society (1906). The concordant results obtained by Campbell and White were doubtless due to the refinements made in their apparatus.

The following table gives the results obtained by the investigators—condensed for the purpose of saving space. Averages of from four to eight results are taken.

Table showing change in volume of bars of Neat Cement and Cement Mortar lying in water, compiled from papers and experiments noted above.

Authority.	Neat Cement. %	1:3 Sand. %	1:5 Sand. %	Duration.
Bauschinger . . .	+0·046	+0·009	+0·001	16 weeks
Schumann . . .	+0·150	+0·028	—	1 year
Considère . . .	+0·079	+0·028	—	63 days
Campbell and White . .	+0·190	—	—	5 years

All of these results are for specimens which were lying continuously in water.

We now come to study the results obtained upon specimens which were allowed to remain continuously in air. In this case it will be noticed that there is *contraction* (signified by the minus sign) in the place of *expansion* (signified by the plus sign) shown above.

Table showing changes of volume of bars of Neat Cement and Cement Mortar, after lying continuously in air, compiled from papers and experiments noted above.

Authority.	Neat Cement. %	1:3 Sand. %	1:5 Sand. %	Duration.
Bauschinger . . .	−0·214	−0·132	−0·124	16 weeks
Schumann . . .	—	−0·042	—	1 wk. in water, 3 wks. in air
Considère . . .	−0·132	−0·050	—	63 days
Campbell and White . .	−0·390	—	—	5 years

Table of changes in volume of Brick and Stone when alternately wet and dry: Schumann's Experiments.

	2 Weeks in Water. %	2 Weeks in Air. %
Brick, light burned red	+0·016	−0·015
Brick, hard burned white	+0·010	−0·009
Sandstone, red coarse	+0·016	−0·023
Sandstone, red fine grained	+0·050	−0·050
Limestone, white	+0·004	−0·008
Limestone, dense containing clay . . .	+0·026	−0·026
Granite	+0·006	−0·015
Basalt . . . A, b, c, d varies from	+0·048 to +0·023	−0·057 to −0·027

Reinforced Concrete.

Very few investigators have published results upon the most important subject of volume changes in reinforced concrete. In 1899 Considère gave the results on small bars of neat cement and of mortar made with 600 kg. cement to each cubic metre of sand. The prisms were 60×25×600 mm. Half of them were reinforced each with a round steel bar 10.2 mm. in diameter. The measurements extended over a period of sixty-three days, and at the close of the period the following changes were reported:—

Material.	In Water.	In Air.
Neat cement not reinforced . .	+0·079	−0·132
Neat cement reinforced . . .	+0·022	−0·025
Mortar not reinforced . . .	+0·028	−0·050
Mortar reinforced	+0·006	−0·010

In 1904 Emerson published in the *Engineering News* (U.S.A.) a study of the change in length of the reinforcement. The changes in length of the rods were measured and the resulting stresses in the steel were calculated from Hooke's law. The bars kept continuously in water had a tension stress of 8,000 lb. per square inch when bedded in neat cement and a tension stress of 1,000 lb. per square inch in 1:3:6 concrete. With bars kept constantly in air the steel was under a compression stress which was generally greater than the tension stress in the bars kept under water. It was found that when the bars were taken out of the water and left to dry in air, the stresses in the steel changed from tension to compression as the bars dried.

Summary of all Results.

We are now able to see the exact position of affairs until Professor White made his experiments. It was known, from the above experiments, that the neat cements, hardening under water, expand at a decreasing rate for several years. Also that neat cements hardening in the air contract in a similar manner. Further, that cement-sand mortars change in the same direction as the neat cements, but to a lesser extent. On the whole, however, we really have very little definite data upon the physical properties of cement, concrete, and reinforced concrete. Moreover, it must be borne in mind that there have been introduced changes in the method of manufacture of cement since many of these results have been obtained. For example, the European investigators mentioned above certainly used cements made in the old vertical kilns. Professor White reminds us that the modern American cement which he used in his work is made in rotary kilns, and differs from the older material not only in manufacture, but also in chemical composition.

(To be concluded.)

ILLUSTRATIONS

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.

OUR inset plates this week show some of the buildings visited by the Architectural Association on their excursion to Touraine, and are reproduced from photographs and measured drawings lent by Mr. Banister F. Fletcher, F.R.I.B.A.

SHOREHAM AND ITS DISTRICT.*

SHOREHAM was an important place in Saxon times. Remains of Roman villas have been discovered in the neighbourhood. Skeletons with flint implements were found in one of the barrows on the down when it was opened out some years since, and the evidence of very early earthworks for defensive purposes are numerous enough along the top of the grandly rounded chalk hills. Therefore its history is long and honourable. In speaking of Shoreham, I refer to the sea-port at the mouth of the river Adur, which flows through the gap in the downs we know as Shoreham Gap.

Now I believe that before Shoreham came to be, Bramber was the important place. In the earliest times men seemed to favour as the sites of their principal settlements some spot, not at the river's mouth, but a little way up the stream, and in Saxon times the estuary of the river must have been very wide, as far at least upwards as Bramber; and here, on a spur of the hills, precipitous on three sides, a castle was built, which was the residence of the local royalty of that day. King Ethelwulf, father of Alfred the Great, who was buried in the church of Steyning hard by, used Bramber Castle as one of his palaces. It is mentioned in the Domesday Survey as existing at that time, and was one of the manors handed over by William to the barons who had assisted him in his great conquest. In this particular case William de Braose thus became the owner, and along with it numerous manors and lordships in the immediate locality.

NEW SHOREHAM CHURCH.

Population always gathered round these castles, partly for protection and partly from commercial motives; and thus in the centuries preceding the Conquest Bramber was probably the chief town. The river Adur, however, like many other rivers, particularly at their delta, was rather an uncertain quantity, and owing to the almost constant shifting of the outfall silting up was constantly going forward, so that by the ninth or tenth century it was needful to strike camp and move lower down the river to a point where ships could reach without difficulty from the sea; hence the founding of "Shoreham," meaning, surely, "The Home by the Shore." This was, at the first instance, at the river bend, where we now see Old Shoreham. The glory of the place, however, was but short-lived, because no steps were taken o control the effects of the tide upon the shingle bar across he river mouth, and as a consequence alternations of flooding and silting followed, rendering a further move downward necessary, and the town we know as New Shoreham came into xistence during the closing years of the eleventh century; nd with Shoreham rising Bramber became but a village.

Shoreham, from the twelfth to the seventeenth centuries, was one of the chief sea-ports of the South of England, ranking at one time equal with Portsmouth and superior to Dover. Being at the mouth of a river, it was conveniently placed for shipbuilding, owing to the plentiful supply of oak, obtainable from the Wealden forests, and the deep water at full tides n the estuary, rendering launching easy. In the third Edward's day Shoreham provided twenty-six vessels and 336 men as its contribution to the national fleet. In the days f the filibustering era of the sixteenth century Shoreham made its contribution of dare-devil commanders and hardy seamen, whose piracy was counted patriotism. Since that date, however, its fortunes as a marine manufacturing seaport have gradually declined, and its activities in that direction are now mainly restricted to pleasure-yacht construction and repair.

The district must have been largely populated at the arrival of the Norman conquerors, judging from the fact that there are as many as twelve churches bearing the unmistakable mark of their work within a radius of five miles. This fact renders the district unique. Taking the churches in the order in which we have visited them to-day, I will mention a few of the points which call for your attention.

St. Mary's, New Shoreham.

This building was originally much larger, and contained an extensive nave and aisles in addition to the present choir and transepts—there are still to be seen traces of the old walls and foundations of this extended building.

It was founded by William, third Baron de Braose, in 1130, when the inhabitants had shifted from the old town and were building New Shoreham, though there is reason to suppose that a chapel existed on the spot at an earlier date, because we find that the De Braose of 1103 by deed conferred the church and its revenues on the Abbey of St. Florence of Saumur, who had established a branch of their house at Sele, not far off, now known as Upper Beeding.

William de Braose's building was partly rebuilt by the fourth Baron in the form we see now. Begun in 1175, it was completed early in the thirteenth century. With nave, aisles, transepts and choir it must have been a grand building. Why the nave was demolished appears to be uncertain; but I think that the remains now visible would indicate that it was accidental; and the opportunity was taken in restoration to reduce the size of the building owing to the decay of the numerical importance of the town population. As this church dates from quite late in the Romanesque period, it exhibits the richness of detail we should expect at a time when the feeling of the builders was making for profusion of ornament rather than the grand simplicity of the earlier artists. Hence the choir arcading is rich in scrolls of leafage, instead of the geometrical patterns we see at Steyning and other places. It is an early instance of transitional work, as you have clustered columns on the south and circular ones on the north side of the choir; while in the arcade itself, which is pointed on both sides, you find the sunk, undercut mouldings of the Early English, which, although undoubtedly all of the same period, differ from one another in section—those on the north side being round, and those on the south pointed.

OLD SHOREHAM CHURCH.

The column caps to the north arcade are noticeable, the ornament consisting of Classic volutes, all turned one way as if wind blown, some plain volutes, and some foliated. It is also noticeable that, while the aisle windows and arcading are Romanesque, the vault piers, capitals, and mouldings are of a more advanced style.

I believe that the builders of this church must have been among the first to recognise the necessity of the flying buttress as a counter-action to the thrust of the main roof vault that they had introduced, and the form and slope of the buttress that they thus invented you can see was somewhat experimental, for it is obviously at too flat an angle to do the best work in transferring the thrust. This may have been recognised by them, for they have surmounted them with extraordinarily heavy pinnacles of the plainest type, placed partly on the aisle wall buttress and partly on the foot of the flier itself.

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* Read at a meeting of the Upper Norwood Athenæum by Mr. rederick Higgs.

There is an indication of the roof line of the chancel of William de Braose's building still traceable on the east wall of the tower arch inside the chancel.

There is a sign of a holy water stoup on the piece of south nave wall left standing, high up, a little above the level, as I suppose, of the ancient rood loft, and doubtless used by the priest from that elevated situation to sprinkle the worshippers on the nave floor below.

There is a fifteenth century brass, of no very great interest, and the old square font is of Sussex marble, and undoubtedly Norman in period.

To sum up: This building is one of the most interesting churches in existence, as setting forth the advance from the simple forms of the Norman-Romanesque, a movement of architectural thought which was destined to develop to such an astonishing extent during the succeeding centuries.

St. Nicholas, Old Shoreham,

was probably erected in pre-Norman times, at least so far as the main structure is concerned, which is built in too rough a manner, it is thought, to have been the work of the Normans. This is confirmed by Domesday Book. De Braose, the first Lord of Bramber after the Conquest, no doubt remodelled and largely rebuilt it in the form now apparent, after which he presented it to the Monastery of St. Florence of Saumur. By the middle of the eighteenth century it had fallen into considerable disrepair, and it was then restored, when it is said that care was taken to reproduce the old features as far as possible.

There are several noticeable architectural features here: the entrance doorway in the west wall of the south transept has a very beautiful arch in three orders; triglyphs, zigzags, and pateræ. Two or three very beautifully moulded oak tie beams in the roof, having dog-tooth and billet ornaments cut thereon. The ancient oak screen is also a very good specimen of early joinery work, though plain in detail. The four arches carrying the tower are most elaborately moulded, having a label of pateræ with curious figures as bosses at feet, next, diagonals or zigzags with roses and occasional leaf ornament, then a big bead or bowtel, with a square order as a foundation. The most remarkable feature, however, is the very curious and unique zigzag all round the outside of the narrow slit windows in the north and south transepts. The nave, transepts, and tower are the ancient part of this building, the chancel having evidently been built much later.

Our way from Old Shoreham follows the old road along the river valley to Beeding (formerly Sele), site of the old monastery before mentioned, a branch establishment of that of St. Florence of Saumur; and we cross the river over a small bridge, the site of an ancient and more interesting one. In 1320 the Bishop's register mentions a chapel constructed on the bridge at Bramber, and dedicated to St. Mary the Virgin; it was excused, on the ground of poverty, from contribution to the taxation instituted by Bishop Langton, and in 1368 the Bishop of Winchester granted forty days indulgence to all who would help to repair this bridge, which is thought to have extended almost as far as the Castle, as a sort of causeway over the flooded low-lying marsh land.

Entering Bramber, the most picturesque of Sussex villages, we pause at St. Mary's House, a splendid sixteenth-century timber structure formerly connected with the monastery at Beeding—it is mentioned among the old records of this monastery as the Chapel House. Noticeable features are the beautiful wrot iron work in the window guards, entrance gates, bell-pull, and bracketed sign of a griffin carrying a key. and, just inside the gates, the two elaborate Jacobean door posts. There is a charming garden front, long, low, and picturesque, with a stone-covered, dormered roof with overhanging eaves surmounting quaint bracketed windows.

The site of the castle is on the north-east side of the street, and the hill upon which it was constructed covers three acres. Very little remains of its former grandeur, a few pieces of the curtain wall, including a pier or two of the gateway, and a large mound, covering most likely the ruins of the keep and the principal apartments, otherwise Nature, in her own quiet, imperceptible, and yet irresistible way, has obliterated everything. Probably the residence of kings in Saxon times, it was granted by the Conqueror to his henchman, William de Braose, and remained in his family's possession until the De Braose family subsequently became merged in that of De Mowbray, and later in the Howards. It is stated to have been destroyed in the Parliamentary wars.

The name "Bramber" is Saxon, and indicates "a strong place," and such was evidently its character when in its prime. The castle was built upon a spur of the lower hills, naturally precipitous on three sides, the fourth being made so by the excavation of a moat or vallum. It commanded the river valley and the consequent approach from the sea as well as the land.

The little church of St. Nicholas, Bramber, on one of the lower slopes of the castle hill, is probably but a fragment of what it once was. It is now nave, tower, and chancel only. The main arch is simple Norman in character, and indications of the original transept arches are visible on the north and south tower walls. It was a rectory in 1075, and belonged, like the other churches we have seen, to the Monastery at Saumur, the patronage being now vested in Magdalen College, Oxford.

A short journey brings us to Steyning, a quaint old-world town, nestling under the downs, and possessing ample interest for the antiquary. Our chief point, however, is the grand Norman church of St. Andrew. It has an aisled nave with clerestory; but an unaisled chancel, and a western tower. Its chef-d'œuvre consists of the very beautiful nave arcade and the exceedingly lofty and ornamental chancel arch. You will have noted the wealth of Norman ornament on the arches; not only are the faces enriched in this way, but the underside also. Some of the ornament is left unfinished; the story goes that the monks had this work in hand, one arch, one monk, to do in his life-time, and the unfinished arches are where the artist did not survive to complete his job. This church (built within the first century after the Normans began to come), is a first-class illustration of the advance of ideas in architecture from the solid dignified simplicity of the earlier warrior priests and lords, the first move in the direction of embellishment taking a geometrical form. The dentil or billet course for the label, the dog-tooth and chevron, both zigzag in idea, sometimes small circular sinkings or pateræ, with internal circular ornament, which developed into a kind of rose form; but all these set out either with a straight edge or compasses. In Steyning we have this movement almost at its zenith, and a beginning made on to the further form of foliated ornament in imitation of leaf and flower, which is very noticeable in the column caps, where we find, in the cushions, a fern leaf introduced in between the inverted cones.

BRAMBER VILLAGE.

At the same time the builders had not yet advanced much in the matter of construction, as the Norman pilasters occur outside the aisle walls, forerunners of the buttresses which developed so greatly, and take such an important place in the Gothic periods which soon followed.

The clerestory windows present a curious feature, being differently placed within the thickness of the wall; one side they are close to the outer face, with the deep recess inside; while on the other side the reverse is the case.

The font is an ancient Norman one, with arcade ornament on the outside of the bowl stone; the south door is very old, with mediæval lock and latch, and inside the porch is an old stone coffin-lid, said to have covered King Ethelwulf's remains, who was buried within the church precincts.

Edward the Confessor conferred the manor on the Abbey of Fécamp, who continued to hold it until the suppression of the alien monasteries. As a consequence, a small branch of that house was established at Steyning.

It is probable that these monks erected the church, a fragment only of which we see to-day, as I am quite sure that builders who could conceive forms as beautiful as these fragments are would not have been content with so comparatively small and insignificant a sanctuary, containing, as it did, the shrine of St. Cuthman, who founded the original building, and about whom strange and mysterious legends are current. The original Norman building was cruciform, with transepts, chancel, and a nave, extending further westwards than at present, with probably a central lantern tower. The present western tower and chancel are both comparatively modern.

In the Vicarage dining-room is a remarkable piece of Tudor panelling, which must have formed part of the earlier building following the monastic period. It bears date 1532, and contains the arms of Henry VIII., combining those of France and England, and there is the Tudor Rose and the Pomegranate of Queen Catherine, while a constantly recurring monogram is as yet unexplained. The arms of a Bishop are also frequent; this probably had reference to our old friend Waynflete, the builder of Esher Palace, which we have visited.

After the suppression of the alien religious houses the Priory passed into the hands of Sion College, and then into the hands of Waynflete, who devoted its wealth to Magdalen College, Oxford. The existence of this panelling is very little known, and we are much indebted to Mr. Pridgeon, the Vicar, for his courtesy in letting us see it to-day.

At Sompting Village we turn towards the church, lying some distance from the highway, in the direction of the Downs. This church is noted mainly for its unique Saxon west tower. A square on plan, each side having a high-pitched gable, whose sloping sides are joined by a roof, which, continuing up to a point where all the sides meet, assumes the appearance of a pyramid with the corners cut off. There is a light wall pier, or pilaster, running up the centre of each side up to the apex of the gable, each having an enriched cap about two-thirds up its height. There are small circular headed windows in the walls indicating the Norman feeling, which was then making way.

SOMPTING CHURCH.

Internally the church is very interesting, mostly dating from the twelfth century. The capitals carrying the tower arch are extremely interesting as showing the imitative efforts of the late Saxon builders—in a very rustic way one is a copy of an Ionic capital, while the other is still a ruder attempt at the Corinthian acanthus leaf group. There is some good groined work, both in the chapel of the south transept, now used as a baptistery, and in the north transept.

There are two ancient sculptured panels, one on the east wall of the south transept represents a Bishop, conjectured o be St. Wilfred with his staff; this panel probably formed part of a triptych, descriptive of three of the learned doctors of the early Church, or it may have been part of a former reredos; the other is on the north nave aisle wall, and stated to have formerly been outside, represents our Lord, with a book in one hand, and with the other conferring benediction. The signs of the four Evangelists are in the borders.

There is a canopied tomb of Richard Burré, member of an ancient yeoman family in the district, and bearing shields with the arms of Leathersellers, Goldsmiths, and Fishmongers' Companies of London, and which used to be utilised as an Easter sepulchre. The present lay rector bears the same name of Burry.

LANCING CHURCH.

There are some ancient ruins outside the north-west corner of the nave of a chapel dating from the fourteenth century. This was probably a chapel of the Knights Hospitallers, who inherited adjoining lands from the Templars at their dissolution in 1306. The font is ancient, and probably coeval with the church.

I am grateful for the support and the patience which you have afforded me; also to the good Vicars of Steyning and Sompting, and to the authorities of the other churches visited; to your chairman for his invaluable assistance in the organisation of the travelling and feeding; and, lastly, to the authorities whose works have afforded me ample quarries of information in preparing this paper, viz. Cartwright's and Horsfield's Histories of Sussex, the "Homeland Handbook" of the district, and that wonderful treasure-house, Bond's "English Gothic Architecture."

CALCULATIONS FOR RETAINING WALLS.

(Concluded from last week.)

23.—*Analysis of the Earth Pressure.*

If a steep bank of earth—such as the edge of an excavation —be left to itself for some time it will fall in under the effect of the weather, and will gradually become flatter in inclination until it alters no more.

The angle its inclination, when at rest, makes with the horizontal, is called the "angle of repose," and, of course, varies with the various kinds of earths. (*See* Table VI.)

Table VI.

Angles of Repose of Various Earths (Hurst).

	ϕ
Vegetable earth or clay in its natural state .	45°
Moist gravel and sand	38°
Wet excavated earth	36°
Fine dry sand	32°
Clay saturated with water	25°
Clay recently excavated and saturated with water	15°

In fig. 12 the angle of repose is denoted by the letter ϕ

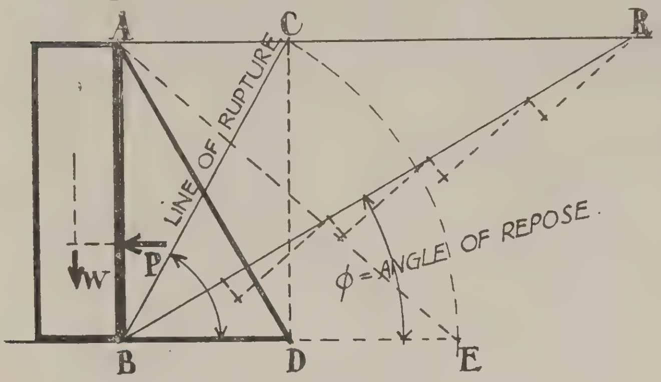

FIG. 12

It will be evident that the earth below the line BR will have no effect upon the wall.

If the wall were removed the earth represented by the triangle ABR would alter its shape until the face AB assumed the inclination of the angle of repose. But now that this earth is held by the wall it is like a wedge bearing upon the earth below it and upon the wall. The thrust of a wedge is equal upon both supports, so that the wall takes one-half the thrust of the triangle ABR, and the earth below the angle of repose the other half. The actual thrust, then, is represented by the triangle ABC, where BC bisects the angle ABR. BC is called the "line of rupture."

24.—*The Actual Pressure of the Earth.*

This is now represented by the triangle ABC (fig. 12).

Assume the earth to be very loose, as this will be its worst condition. In this state the pressure at any depth is exactly the same as it was for water—equal to the weight vertically above it and the same in all directions.

That is to say that at B the pressure is equal to the weight of a column of the earth of height BA.

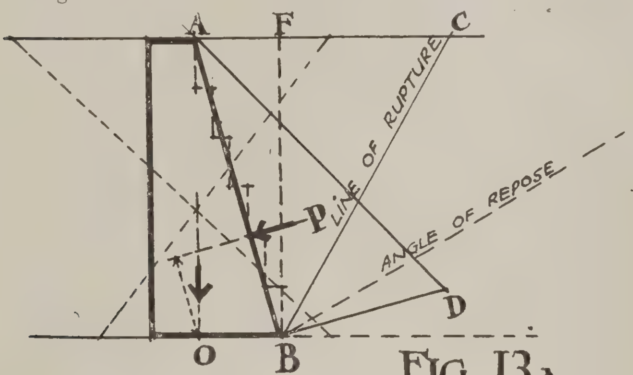

FIG. 13A

This would give us a triangle of pressures like ABE, where BE = AB. But as we have not a total pressure in ABD as great as this the triangle of pressure must be reduced so as to be equal to ABC. This is ABD, where BD = AC.

The thrust at any point is the ordinate of the triangle ABD at that point, and the total thrust P = area of the triangle in feet × length of the wall in feet × weight of earth per cubic foot, and it acts through the centre of gravity of the triangle at ⅓ the height of BA. The stresses on the joint at the base can now be found and the wall designed.

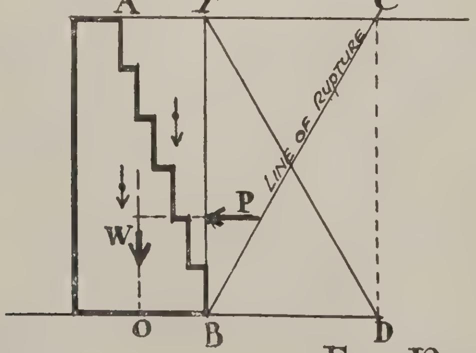

FIG. 13B

25.—*Wall with Sloping Back.*

Such a wall is shown in fig. 13A. The line of rupture is BC, found as before.

The earth represented by the triangle AFB is neglected. The earth producing the thrust is represented by the triangle BFC. Draw BD normal to AB and equal to FC.

Then the triangle ABD represents the sum of the pressures, and P acts through its centre of gravity normal to AB, its leverage being about O, as before. It is customary in walls of this section to build the back with off-sets. This gives authority for the assumption that the earth AFB acts with the wall. The method of working is shown by fig. 13B.

26.—*Surcharged Walls.*

When the earth behind a wall is not horizontal but is sloping upwards the wall is said to be surcharged.

In fig. 14 produce the line of rupture until it meets the line of the surcharge. (Note that the angle of the surcharge with the horizontal cannot be more than the angle of repose.)

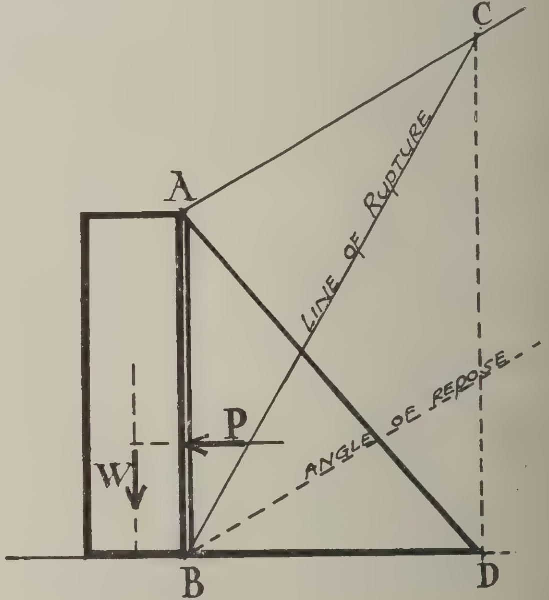

FIG. 14

The triangle ABC is then the wedge of earth affecting the wall. Draw a perpendicular from C to D.

The triangle ABD represents the pressure, and P acts through its centre of gravity normal to the wall.

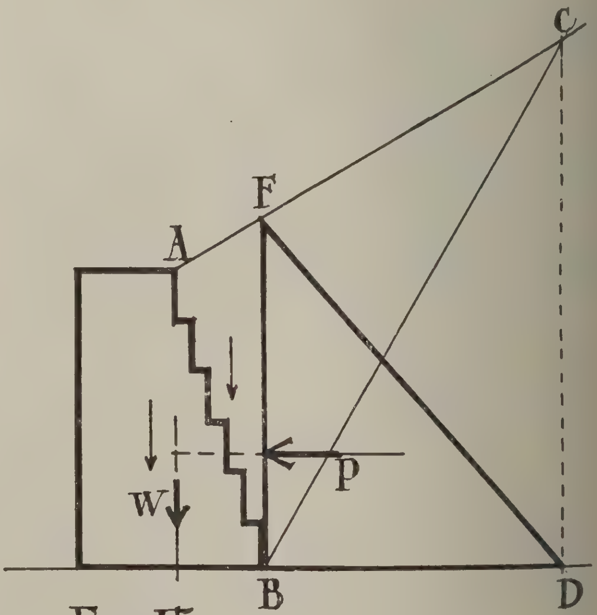

FIG. 15

In fig. 15 the earth AFB acts with the wall, and the triangle BFC is the wedge of earth affecting it. BFD represents the pressure, and P acts through the centre of gravity at one-third the height BF.

THE ARCHITECTURE OF LONDON HIGHWAYS.

By "Viator."

CLUBLAND, ANCIENT AND MODERN.—ST. JAMES'S STREET AND PICCADILLY.

IF it was considered desirable, in the previous article, to avoid the use of the word "Clubland," it is certainly justifiable to use it in connection with the thoroughfares now to be passed in review; for in St. James's Street are situated the clubhouses of more remote date, whilst in Piccadilly are congregated the majority of the more recent establishments, including even the Royal Automobile Club.* The latter, however, as we saw, is preparing for itself a noble habitation in Pall Mall; this thoroughfare (it may be observed) was the original home of some of the earlier clubs, which afterwards migrated to St. James's Street.

It would have been more in accord with our own wishes to have comprehended within the limits of one article the consideration of Clubland; but though the eyes and brain of us never weary in perusing our lucubrations, it seemed only kind to the readers of *The Architect* to cut (we cannot say "short") the previous article before completing the review of the clubhouses of the West. Some of these will still be off the track, but before this account is ended, London Clubland will have yielded up to zealous research most of its domiciles.

These social centres had their origin in the old coffee and chocolate houses established in the early years of the eighteenth century, subsequently (in some cases) taking form as proprietary clubs, which were farmed out and in process of time gained reputations which would in these days be considered unenviable, in view of the high play and large stakes involved. Of such character were Almack's, Crockford's, White's, the Cocoa Tree and others.

White's Club was founded in the early years of George II.'s reign and was removed to its present location at the north end of St. James's Street in 1755. The architecture of the club has been assigned—but probably erroneously—to James Wyatt. Alterations were effected a century later, at which time were added the bas-relief medallions of the Four Seasons, designed by George Scharf. Despite the use of stucco, a good deal of interest attaches to the facade, which is well-proportioned; the shallow rustication above contrasts well with the bold V-jointed treatment below, but a note of weakness is struck in the central glazed lunette to the first floor. The Ionic Order for the pilasters is satisfactory, having the grace of a refinement somewhat lacking in the other Orders. The distributed ornament is of the delicate Adams type, which is very pleasing; equal satisfaction attaches to the good cast ironwork. The ground storey bow-window here, so historically famous, is a prevalent feature in the clubhouses of St. James's Street. It is to be seen on Boodle's Club, erected in the early years of George III. by Robert Adam, additions being made by John B. Papworth in the reign of George IV. This is a pleasing bit of work, set between more modern blocks. The effect of the central mass, flanked by the slightly higher wings is not unsatisfactory, and there is distinct pleasure in encountering a partial display of brickwork, when elsewhere so much stone and stucco are to be seen. As might be expected, the ornament is in the latter material, and characteristic griffins confront us over the flank windows of the first floor.

Brooks's Club gained its earliest reputation under Almack, whose name it first bore; its original home was in Pall Mall, where it occupied (1764-8) the site of the present Marlborough Club. It was the social centre of Whiggery, a position held by the St. James's Chocolate House in the days of good Queen Anne. The architect was Henry Holland, and he cannot be altogether congratulated on the result of his labours; for the front of the building is devoid of inerest, though the flank façade provides some satisfaction or the gazer. The deep brick niches of the ground storey re meaningless in the absence of statuary; but this is a efect so common to buildings, that there is great danger of the lapse from Art being overlooked.

There is a sensation of relief in turning towards the Cocoa Tree Club, also on the western side of the street, like the revious building, and like it also in being originally domiciled in Pall Mall, as a chocolate house where the Tories were wont to resort. It was constituted a club in 1746. The uiet stucco façade presents to the gaze a reversed superosition of the Orders, and though this may be academically incorrect, yet with the treatment accorded, the freedom from academic shackles may be understood. The effect of the central pediment, supported by flanking balustrades, is also satisfactory. But with an increased sense of pleasure, attention may now be directed to Arthur's. This, though founded nearly a century and a half ago, occupies a building designed within the period of men still living, being the work of Thomas Hopper in 1825-7. This is a stone-fronted house of the Corinthian order, surmounted by a good balustrade, quiet, dignified and expressive of its purpose: the sole adverse criticism to be offered here is that the columns are too squat, lacking the sense of proportion, which has been adjudged by experience suitable for the Corinthian Order. This building may be compared with the Conservative Club further south in the thoroughfare, the work of Sydney Smirke and George Basevi (1843-5); it forms an interesting pendant design to Arthur's. On each there is the first floor range of Corinthian columns, but the latter are well-proportioned on the Conservative Club, though it must be admitted that the plain shafts are not so pleasing as Arthur's fluted columns; despite this, the Conservative house is the more ornate of the two, without being too ornate. The effect, also, of the central colonnade flanked by pilastered wings is good, the entrance in one being balanced by the customary ground floor bow-window.

Still another Club is associated with history. The Devonshire, over against White's, occupies the house that was formerly Crockford's, and designed in 1827 by Benjamin and Philip Wyatt. After vicissitudes, it assumed its present appearance in 1873 under the capable hands of C. J. Phipps, the former stucco front giving place to the present stone façade; the effect is Wrenesque in a general sense, and more particularly so on the second floor.

The Thatched House is historically interesting, by reason of the fact that "The Club" (or, as it was subsequently designated, "The Literary Club") met here, migrating from other premises in St. James's Street. "The Club," conceived by Sir Joshua Reynolds, enrolled amongst its members many of those who have been eminent in letters, and included also some who have had perchance "greatness thrust upon them." The building itself does not bear being lingered over; the ornament is very florid, though it is partially kept under restraint by large plain wall surfaces. The two-storey shallow oriel is not a pleasing feature. Another building with an unpleasantly florid effect (and it is rather an effect than a fact) is the Royal Societies Club, and over this also there is no inducement to linger. But in the New University is exhibited a building whose Gothic design affords a welcome change from what has hitherto been viewed. Mr. Alfred Waterhouse is usually inspiring, and in the present instance his vigorous apprehension is largely in evidence; the building is instinct with life, but it is the life of the byways, not of the highways. The employment of carved shields, showing the arms of the various colleges, used for the adornment of the string-courses, and the University shields set in the entrance gable serve to recall the treatment accorded by Mr. Reginald Blomfield to the United University Club in Pall Mall East.

Before entering Piccadilly there are a few buildings calling for attention, where club life is not an element. No. 5 St. James's Street,* the work of Messrs. Bœhmer & Gibbs, is a quiet decent façade, which, if not altogether well-proportioned and perhaps also looking somewhat like a house on stilts, yet possesses qualities of refinement and fitness, and the free and unpanelled ornament of the second floor is distinctly pleasing. Lord Byron, who was born in Holles Street, Cavendish Square, lived for a period at No. 8 St. James's Street, and an uninteresting façade is obtruded upon the notice of the wayfarer by means of a high relief medallion portrait of the poet "Pilgrim of Eternity" similar to what may be observed on and in Byron House in Fleet Street. It has been truly said that every house has a history, but its public record may be easily overdone.

With a sense of artistic pleasure reference must be made to an interesting modern building on the western side of the street and adjoining Arthur's — to the premises occupied by Messrs. Chubb. In these days of the Stone Age it is a relief to view this red-brick elevation with its three-storey bay flanked by brick Ionic pilasters and their shielded bosses beneath; the whole effect is that here is presented a building looking well now and destined to wear and weather satisfactorily to a green old age. Of other modern work in the thoroughfare, let it suffice that better and worse may be encountered every day; worse will assuredly be met with in

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* Since writing this article the club has been transferred to all Mall.

* See *The Architect*, November 25, 1904.

Piccadilly, which has now been reached after a somewhat zigzag tour hitherto.

In traversing Piccadilly there is apparent in the first place in regard to the clubhouses a great general difference from those in St. James's Street and Pall Mall; whereas in the latter thoroughfares most of the houses are built for the specific purpose, in Piccadilly a large number are merely adaptations of private dwellings—with some notable exceptions, however.

It is not often that two adjoining clubs have the same creator; in Pall Mall there are the two by Sir Charles Barry, and here in Piccadilly are the Badminton and the Junior Constitutional Club designed by Robert W. Edis. The former dates back twenty-seven years, and is a neat little building, unobjectionable and unobtrusive, even if it be undistinguished. A plain stone façade, not symmetrical and yet not losing thereby, its merit depends almost wholly upon proportion and massing; in this offering a contrast to its mammoth neighbour, which is an example of symmetry and well-distributed ornament, of which there is a sufficiency without a superabundance. This building—the Junior Constitutional, erected in 1892—is one of the earliest instances of the use of marble as an external facing in London; but such use is not very effective permanently on account of the atmosphere, a periodical cleansing being necessary, in order that the values may be restored. The red granite columns to the windows give some pleasing relief to a building that even in their absence would be still satisfactory. Without much exaggeration it might be said that this building looks more in character than the Senior Club by the same architect; for the Piccadilly house is a decorous, stately edifice, whereas the one in Northumberland Avenue is full of colour and domestic charm, qualities unknown to the "Constitution." The Badminton and Turf Clubs are assuredly inexpressive of their purpose as sporting clubs, but there is no need to overstrain these fancies. In passing it is well to affirm the desirability that an architect should acknowledge his handiwork by having his name inscribed in the same way as it is customary for painters, sculptors, musicians, and authors to acknowledge their identity. Colonel Edis has subscribed to this view in his clubhouses, and here in Piccadilly there are some half-a-dozen other buildings similarly acknowledged.

The Junior Naval and Military Club, designed by Messrs. Thomas & Frank Verity in 1891, is, like the two buildings just described, of the small company of specially designed clubhouses in this thoroughfare; and an uninteresting building it proves to be, not so much for want of material of interest as for want of management of the material; it is not a building near which we would linger. And this, too, is the feeling in regard to the Turf Club (at the corner of Clarges Street), which offers to the view nothing striking except a pair of continuous bow-windows, and these are too striking, being overloaded with decoration. The effect of these windows on the brick façade is one of crude application instead of forming an integral factor; in this respect it contrasts unfavourably with the numerous other frontages in Piccadilly furnished with such windows; for the "bow" is as much a feature of this thoroughfare as it is of St. James's Street, with the important variation that in the street now under review it extends through several storeys, sometimes through all.

The premises erected for the Imperial Colonial Club are as commonplace as they are modern; their virtues are of an entirely negative description, and though there are not perhaps any actual architectural vices, yet were the buildings analysed the destructive process would be unpleasant.

Of the numerous premises devoted to club life in the thoroughfare, though not necessarily erected for the purpose, but few demand notice here. Of these the Naval and Military Club may take precedence. It occupies an eighteenth-century mansion, known during the first half of last century as Cambridge House, when it was first occupied by our present King's great-great uncle, the first Duke of Cambridge, who died here in 1850; and here also died Lord Palmerston in 1865, the year in which George V. was born. The house is one of a type, elsewhere exemplified in Devonshire House, but making a much better appearance than the latter, though the effect of but one advanced wing is curious and not pleasing.

(*To be concluded.*)

Mr. W. Hunter M'Nab, architect, Glasgow, has prepared plans for a block of buildings in Helensburgh, comprising eight shops and fourteen dwelling-houses. The scheme was on Monday passed by the local Dean of Guild Court.

ANCIENT BUILDINGS IN TURKEY.

THE following memorial to the Ottoman Government, which has received influential support, is in course of signature by antiquarians, artists, and others interested in the preservation of memorials of the past. Names may be sent to Mr. Arthur Phillips, 9 Northumberland Avenue, Putney, S.W.

To His Highness the Grand Vizier and Council of Ministers,
Sublime Porte.

Your Highness and Your Excellencies,

Without in any way presuming to interfere with the prerogative of Government, we very earnestly beg to appeal to your Highness and the Council of Ministers for the issue, by His Imperial Majesty the Sultan, of an Iradé commanding that measures shall be taken throughout the Ottoman Empire for the protection and preservation of the ancient walls, buildings, temples, fortresses, and other archæological remains, which are universally recognised as being of the greatest possible value and interest to the artist and architect no less than to the scholar and the historian.

We feel sure that the Government of the Sultan cordially desires to take all possible steps for the adequate safeguarding of these precious monuments of antiquity, and that the Council will not misunderstand our motive in making this appeal. It is because we know the irreparable injury done by carelessness to the priceless memorials of the earlier decades of the last eight centuries that we hasten to petition for the effective protection of the works of past ages which, if destroyed, can never be replaced.

OUR CONTEMPORARIES FROM OVERSEAS.

THE *American Architect* (New York) contains a descriptive article with numerous illustrations of recent work by Mr. Louis Christian Mullgardt carried out within a radius of forty miles of the city of San Francisco, which show that this architect has developed a style of his own, interesting in its originality. Some of the designs for the Paris Prize of the Society of Beaux-Arts Architects show what the best of their students are doing to-day.

Der Architekt (Vienna) is less violently "new art" than usual, and contains rational designs for a museum at Innsbruck by Dr. Karl Holey, a church at Abbazia by Carl Seidl, a villa near Prague by Professor Jan Kotera, and for flats over shops by Herren Hoppe, Kammerer & Schönthal.

Arkitektur og Dekorativ Kunst (Christiania) has a critique on a competition for a garden suburb at Vestre Hasle promoted by the chocolate manufacturing company, "Freia." The lay-out and design for houses submitted in the three premiated designs are illustrated.

Arquitectura (Barcelona) illustrates the designs and work in progress at the new cathedral of Vitoria, of which Don Julian Apraiz & Don Francisco Javier de Luque are the architects. A new church at Huerta de Valdecarabanos, Toledo, by Don Jesus Carrasco, and a design for the restoration of the national Pantheon at Caracas, Venezuela, by Don Alejandro Chataing, are also illustrated.

Construction (Toronto) illustrates a costly house at Montreal by Messrs. E. & W. S. Maxwell, in which various parts of the interior are designed more or less in accordance with various phases of French Renaissance. The internal decoration of several Canadian steamships, from the designs of Messrs. Bond & Smith, forms the subject of an illustrated article.

La Construction Moderne (Paris) illustrates two of the competing façades for the prizes of 1909, a house in the rue Defrenoy by Messrs. Formigé and Gonse, and another in the rue Pergolèse by Mons. Roussi.

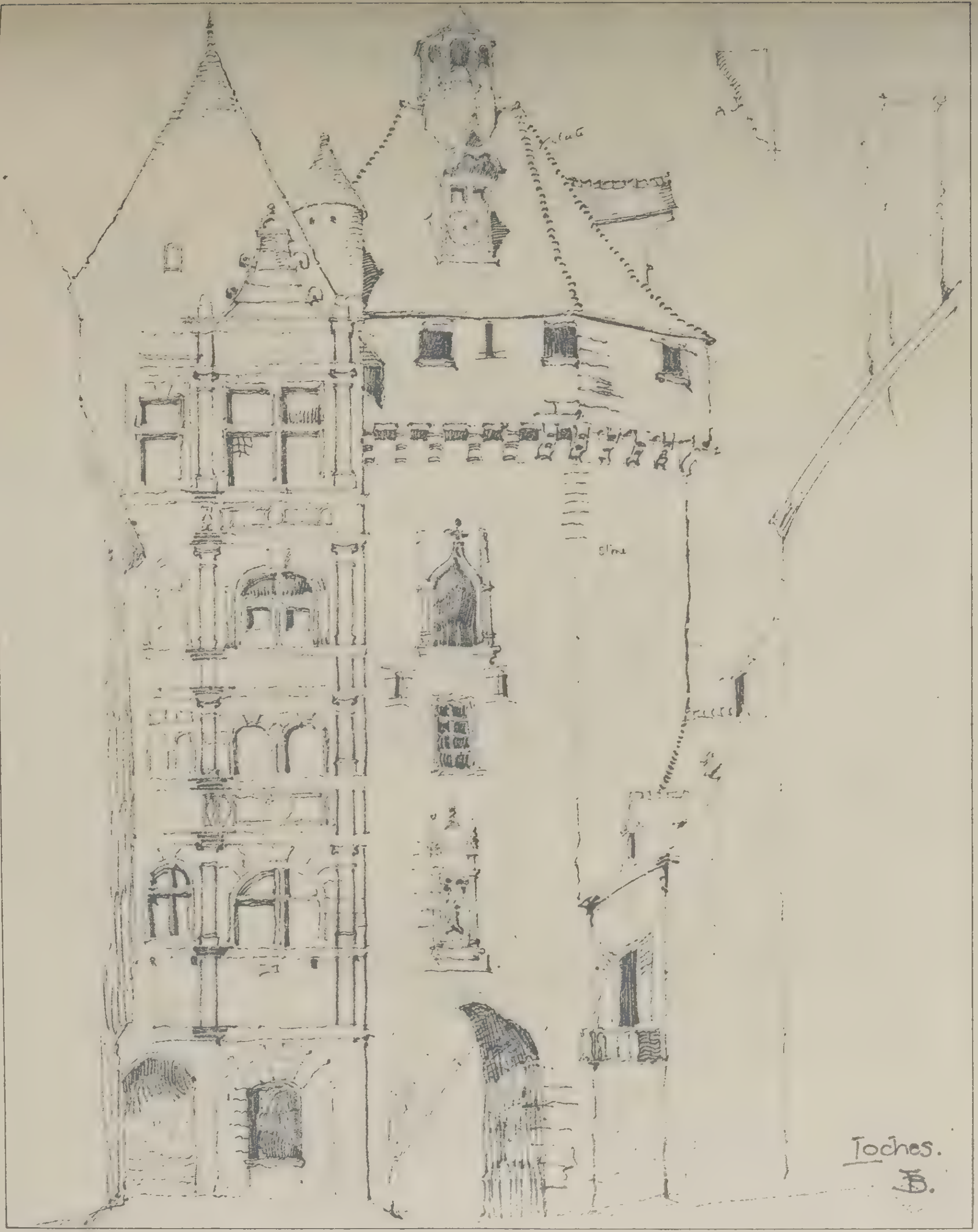
Deutsche Bauzeitung (Berlin) gives a full description with illustrations of the buildings erected for the International Health Exhibition at Dresden.

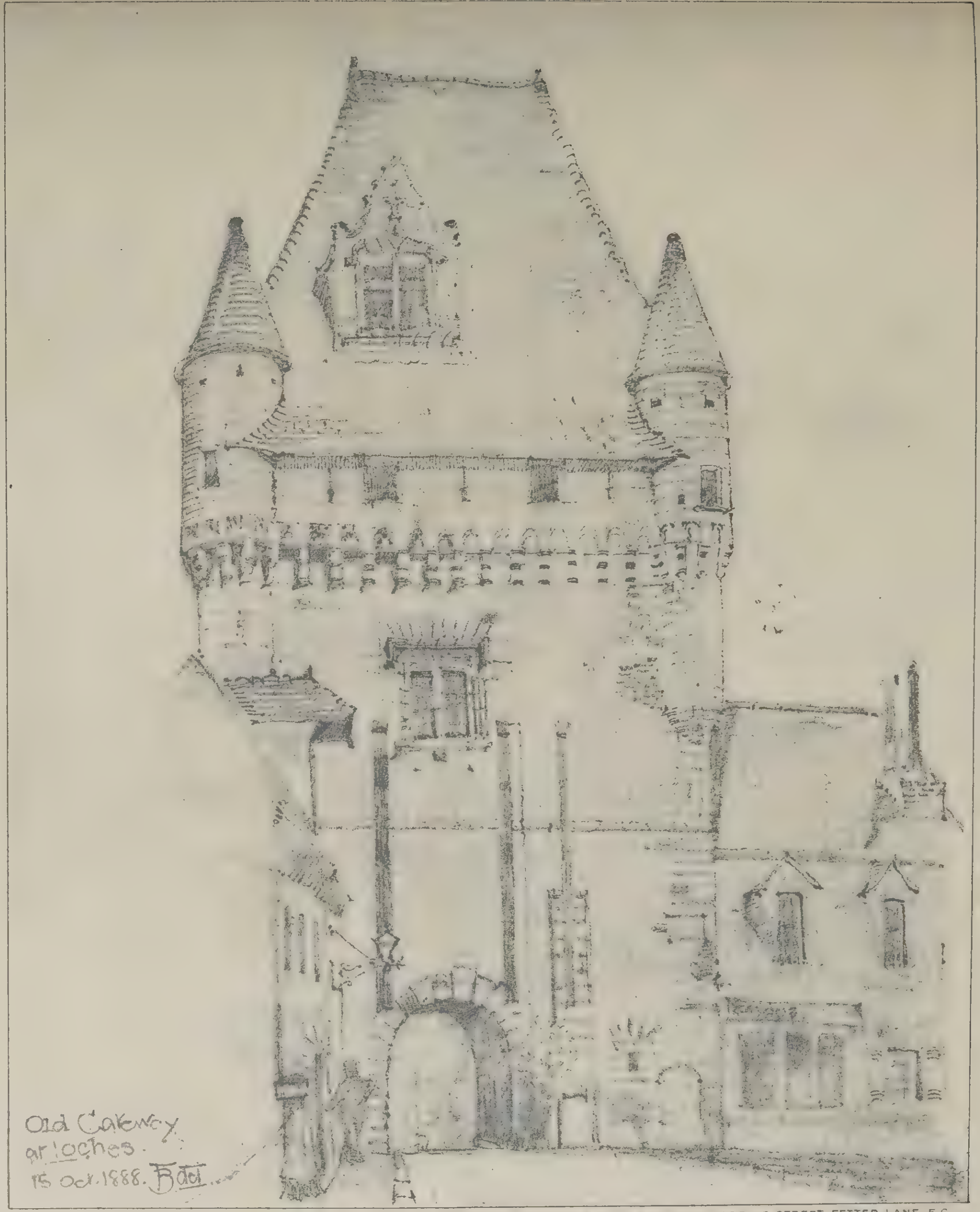
Moderne Bauformen (Stuttgart) illustrates this month a number of designs by Herr Bensel, of Düsseldorf, but for the most part the plates are of miscellaneous character, including country railway stations and American bungalows. There are some well-reproduced colour drawings of interior decoration.

Il Monitore Tecnico (Milan) has an article on the restoration of the abbey of S. Gregorio at Venice.

Stone (New York) includes a good photograph of the fine interior court and staircase of the Palazzo della Universita, Genoa.

The *Western Architect* (Minneapolis) illustrates several examples of Californian architecture, farm buildings in Iowa, a Baptist church at Minneapolis, and a school at St. Louis, Missouri.




Old Gateway
at Loches.
15 Oct. 1888. B del.

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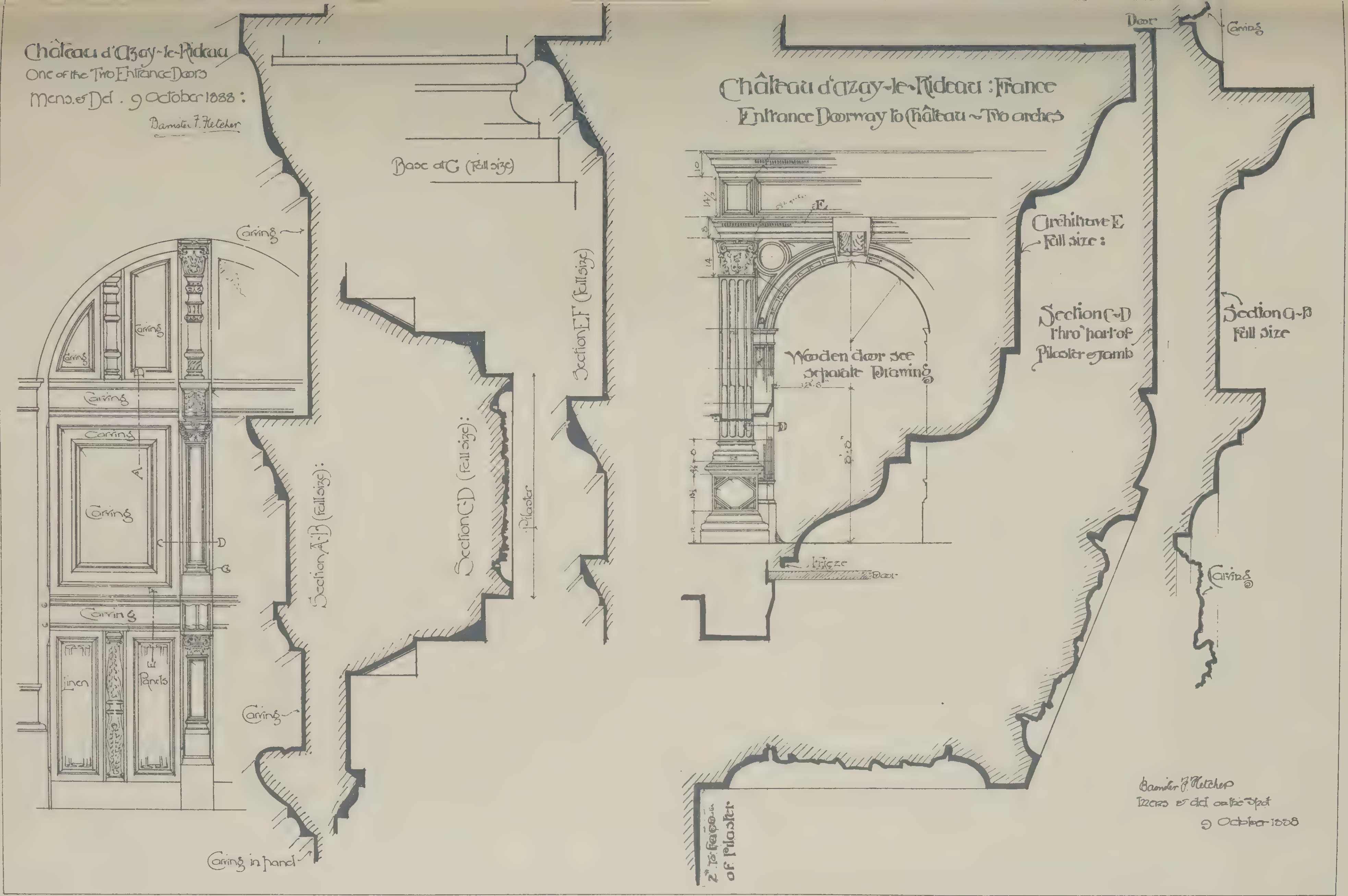
ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION, 1911: TOURS AND THE VALLEY OF THE LOIRE.



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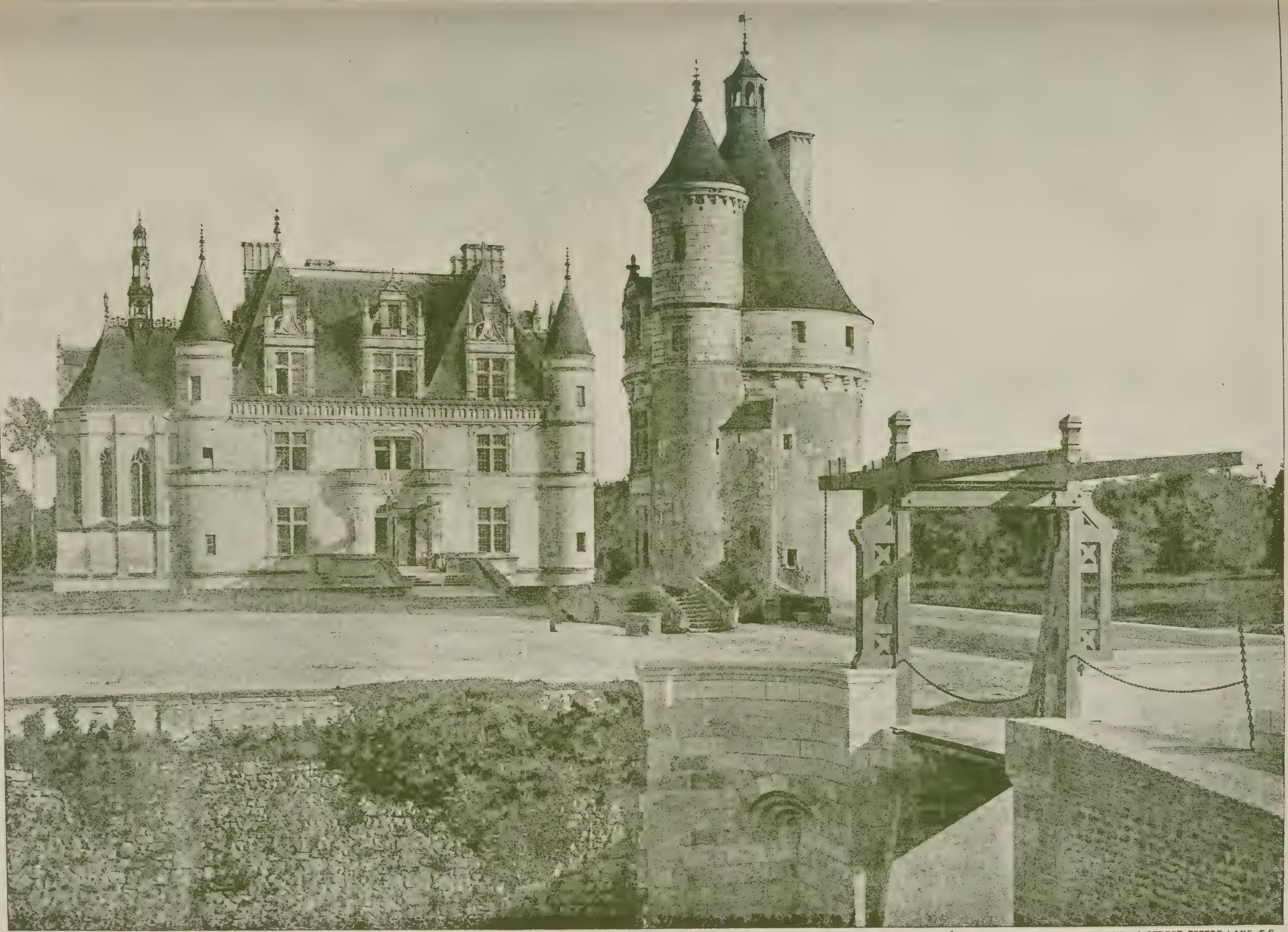

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CHENONCEAUX: THE ENTRANCE.

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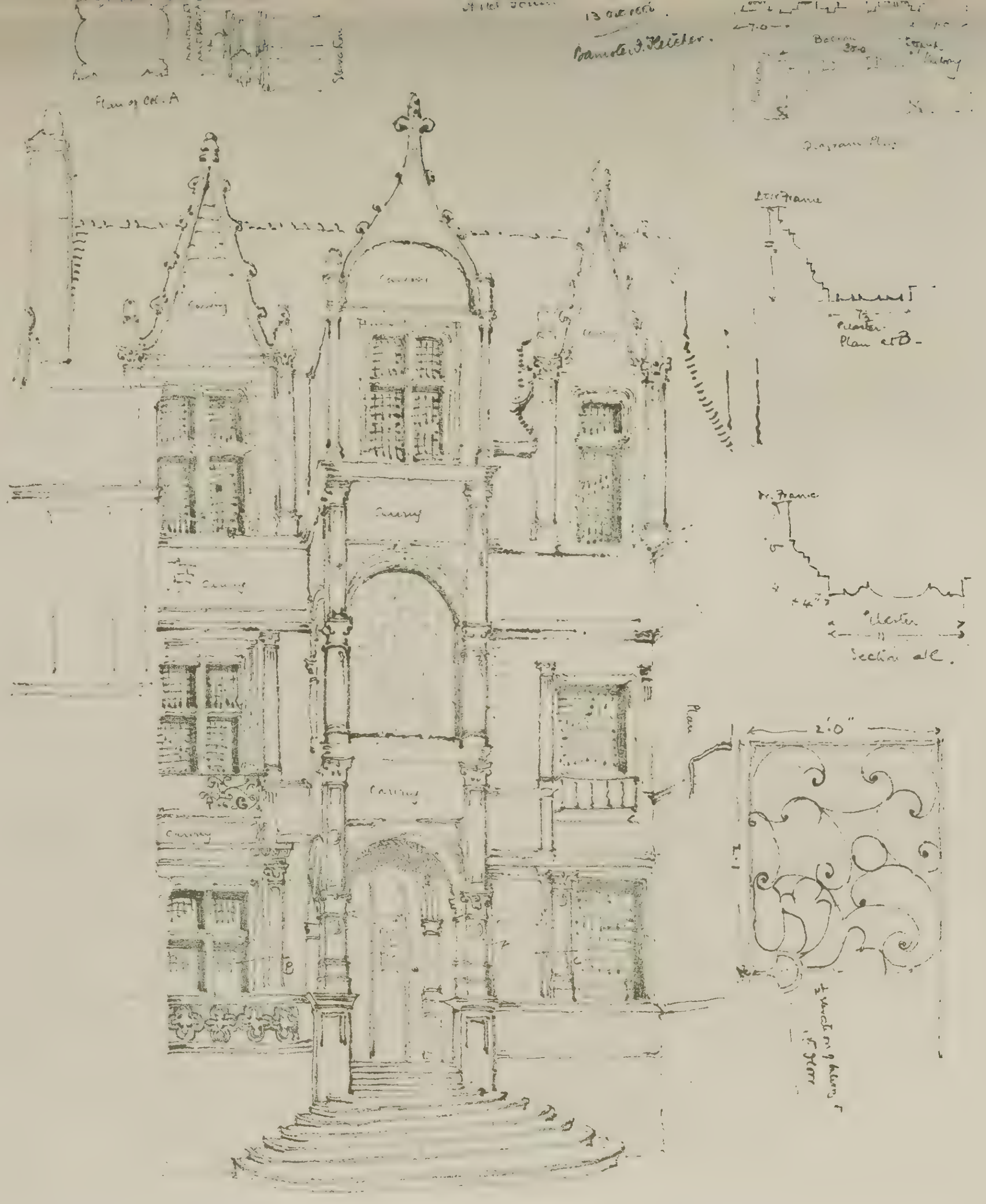

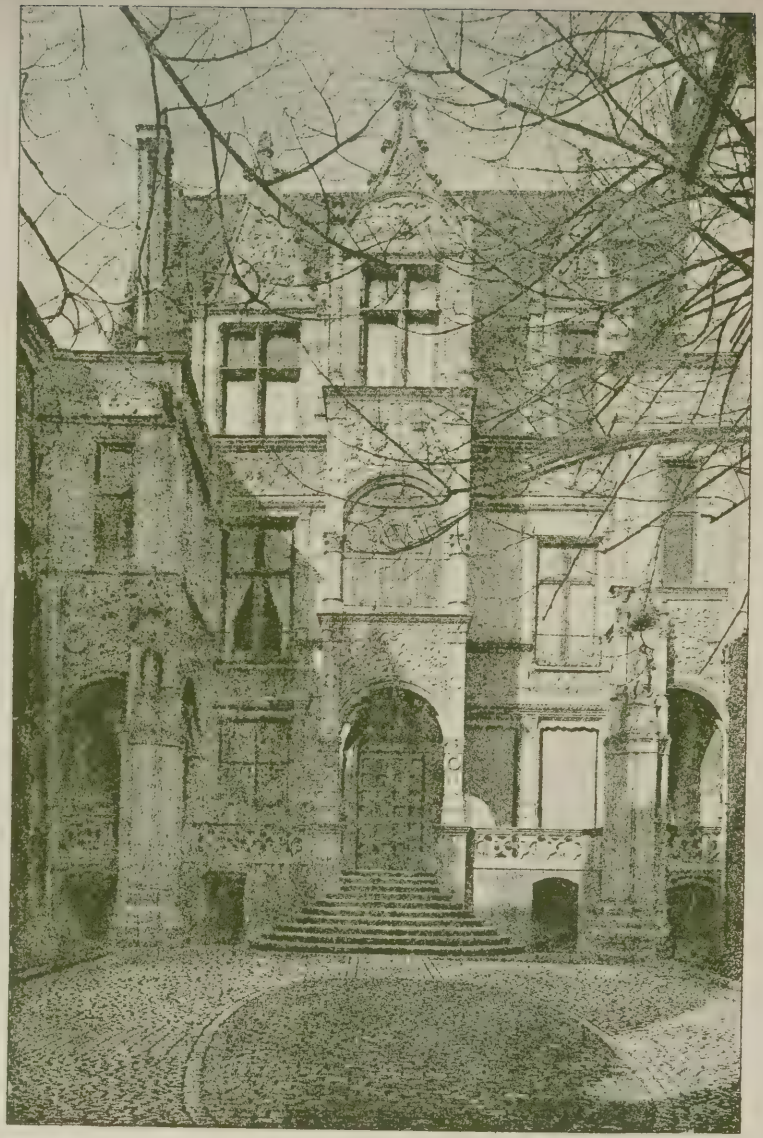

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HOTEL GOUIN, TOURS.

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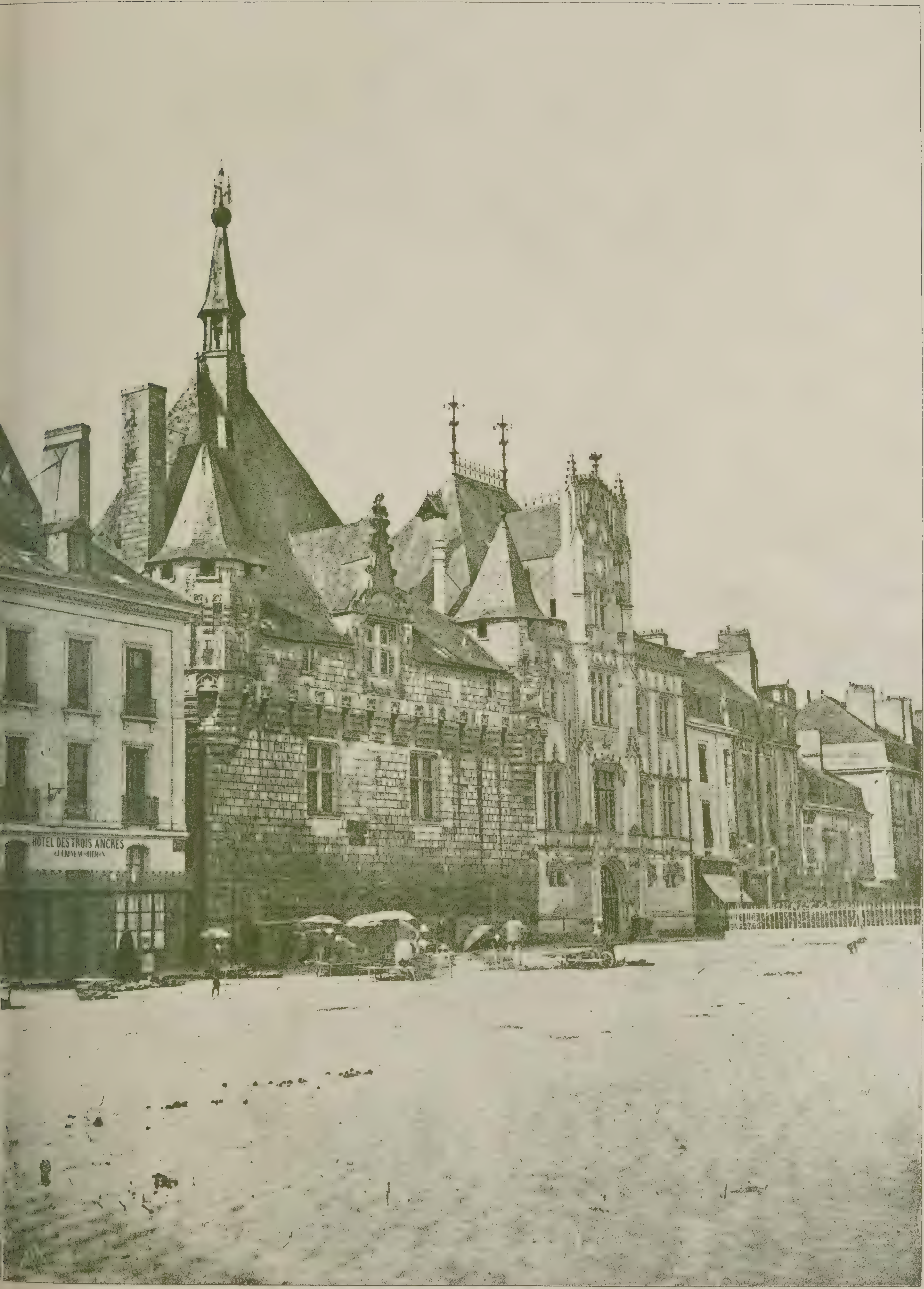

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SAUMUR: THE TOWN HALL.

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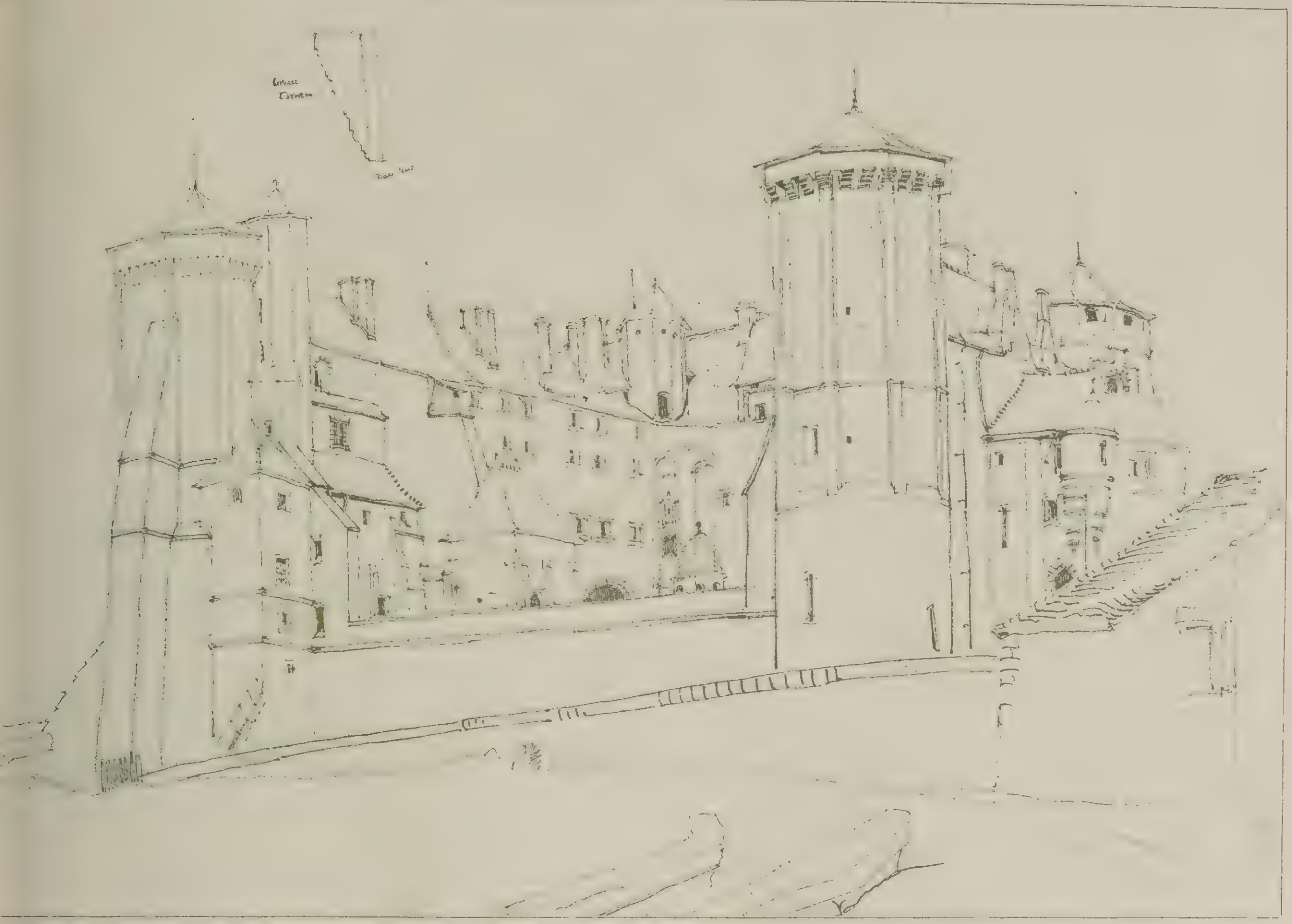
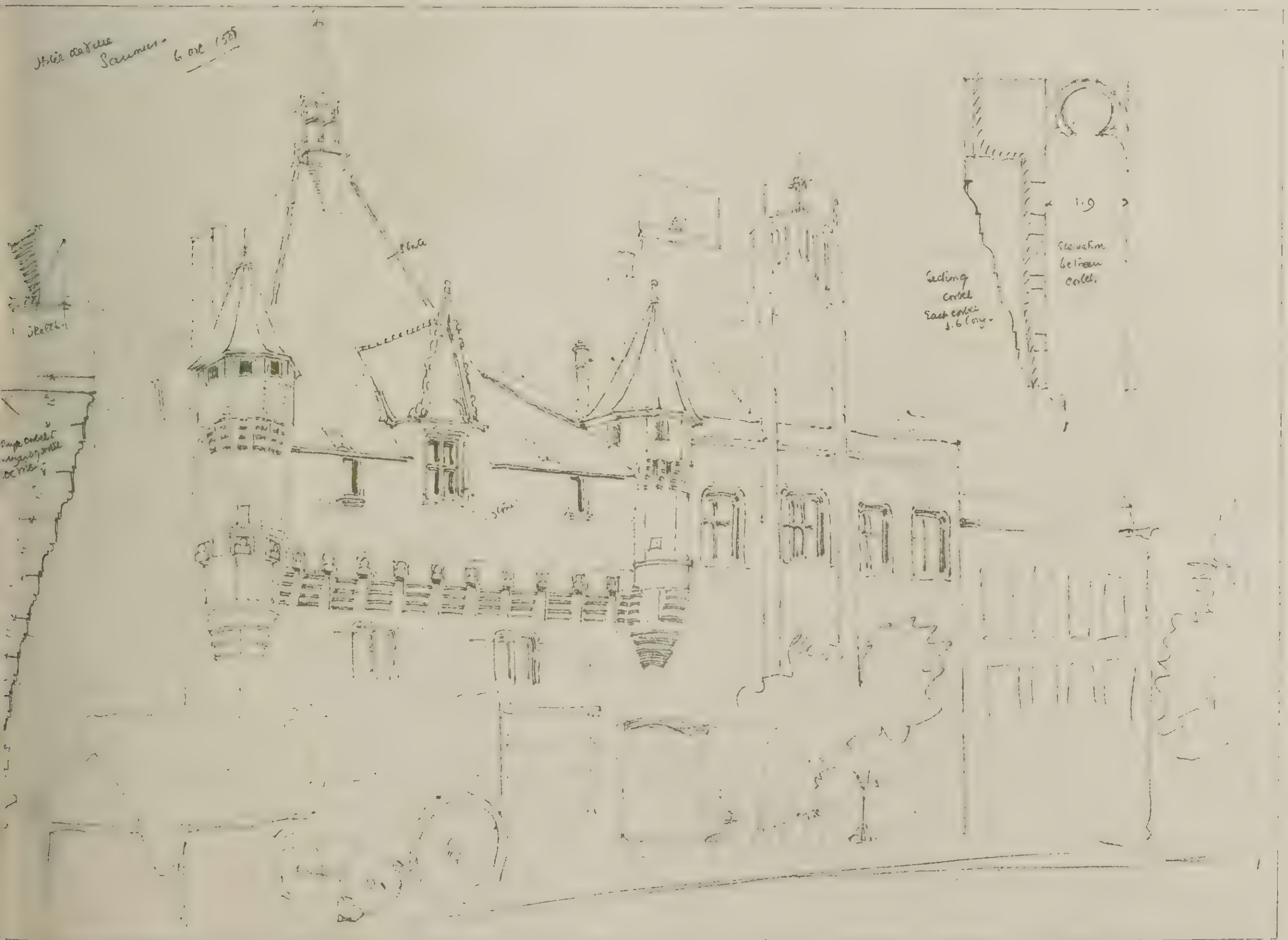


SAUMUR: THE CHATEAU.



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The Architect.

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FORTHCOMING EVENTS.

Saturday, September 2.

Architectural Association : Camera, Sketch, and Debate Club visit to Zion House.

Saturday, September 9.

Architectural Association : Camera, Sketch, and Debate Club's Foreign Tour to Caen and District.

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.—III.

THURSDAY saw another departure from the original programme, it being decided that it was not worth while spending time in visiting Cormery, with its remains of a Benedictine abbey founded by Charlemagne, and possessing a church of eleventh and twelfth-century date, with a refectory and part of the cloister of thirteenth-century work. The view of the monastic pile from the train was quite sufficient for the excursionists, as was that of the Château of Montbazon, with its rectangular keep of the twelfth century, which in 1866 was crowned with a colossal statue of the Virgin in bronze. Even the Château de Couzières, which from the sixteenth century was the home of the Dukes of Montbazon and was rebuilt in the first half of the seventeenth century, was left on one side to carry out the recommendation of some who had been over the ground before to devote the whole day to Loches.

The decision was a wise one. There is more than enough in Loches to occupy the attention of an architectural student for a whole day, and even as it was only a few of the party made time to visit the abbey church of Beaulieu, built by Foulques Nerra between 1008 and 1012, with a fine steeple and stone spire of the twelfth century and fifteenth-century additions or reconstructions. The abbot's lodging of sixteenth and seventeenth-century date has a curious external pulpit, but most of the abbey buildings were rebuilt in the eighteenth century. Besides the abbey there are some old houses in Beaulieu worth study, amongst them a small sixteenth century one with tourelle, the so-called *Maison d'Agnès Sorel*, and the Château de Sansac.

For once work was possible before the inevitable *déjeuner*, and the necessary formal visits to the Château Royal or Logis du Roi, the church and the *donjons* or keeps, which, with connecting and enclosing walls and towers, formed the great fortress of Loches, were got through with still some time for sketching before midday.

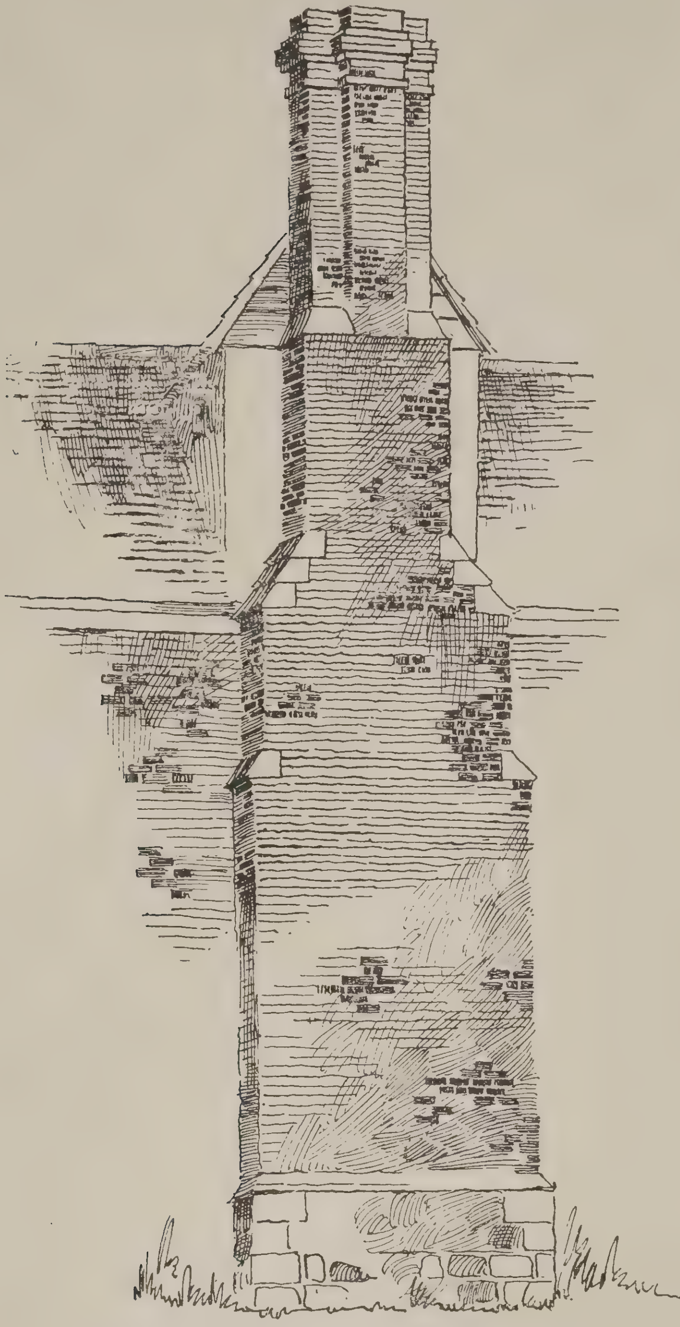
The Château Royal, which was first visited, has been the residence of Charles VII., Louis XI., Charles VIII., and Louis XII., and, as far as the exterior goes, dates from the reigns of the first and last of these sovereigns. In the interior the most interesting part of the château that is shown to visitors is the small mortuary chapel in the highest tower that contains the tomb of Agnès Sorel, with its beautiful recumbent effigy. The oratory of Anne of Bretagne is also a charming work.

The collegiate church of St. Ours, formerly, until after the Revolution, that of Notre-Dame, is one of the most interesting in the Loire district, with its quasi-domical pyramidal roofs over the nave and its two towers. It is curious to find so far north a reflex, if not an imitation, of the plan and roofing of the domical churches of La Charente. The introduction of this form at Loches is credited to Thomas Pactius, who was Prior in 1168. The westernmost bay of the nave, which is surmounted by the western tower, is said to have formed part of the church built by Geoffroy Grise-Gonelle, Count of Anjou, and consecrated in 965. The western doorway of twelfth-century date has a very fine semi-circular arch ornamented with sculptured allegorical subjects, unfortunately much decayed. The excursionists, after viewing the church, which has been, particularly internally, considerably restored, descended to the curious crypt with its ancient mural painting of St. Brice.

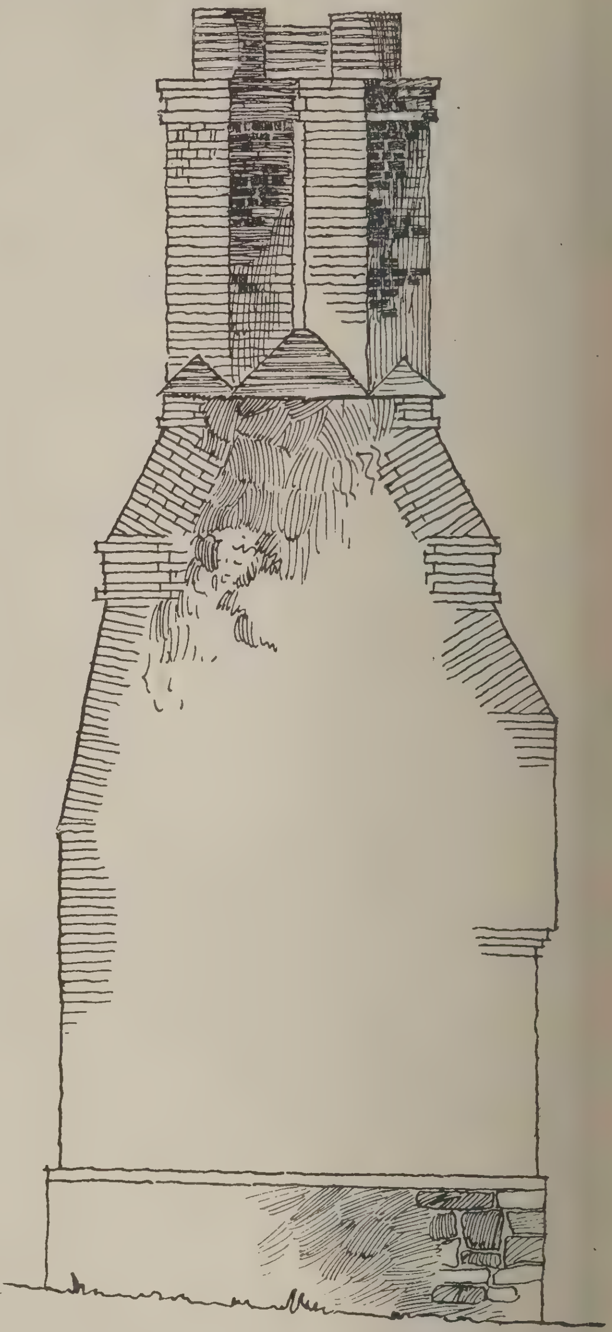
Sight-seeing at Loches was concluded with a tour of inspection of the *donjon* or keep, built in the eleventh and twelfth centuries, and supplemented by the *tour Ronde* or *tour Neuve* to serve as the famous or infamous State prison of Louis XI. and his successors. After *déjeuner* nearly four hours were available for sketching, for which there is in Loches a plethora of subjects, including the *porte des Cordeliers*, with its picturesque tourelles and fifteenth-century windows; the *tour Saint-Antoine*, built between 1519 and 1530, and the only remains of a church since demolished; the Hotel de Ville, erected between 1535 and 1543 from the designs of Jean Beaudoin, and adjoining the *porte Picoys* of the fifteenth century, with which it forms a picturesque composition. There are besides numerous smaller buildings of interest and charm, such as the Hôtel Rouillon in the rue Saint-Antoine, a Renaissance house in the Grande-Rue, and several in the rue du Château, notably that known as la Chancellerie, built in the reign of Henri II. Thus a very satisfactory day was spent at Loches and everyone returned tired and happy to Tours.

Friday proved the culmination of the week's programme. The travelling was done by motor-car, a welcome change from the railway journeys of the previous days in the sweltering heat that prevailed throughout the whole excursion. The first halt was made at the Château de Villandry, where a most enjoyable couple of hours was spent, enjoyable not only by reason of the beauty and interest of the house itself, but still more from the charming enthusiasm of its owner, Mons. Carvallo, who met the visitors and showed them round, pointing out the various features of the house and gardens, as he has succeeded in recovering them from the superimposed eighteenth-century top-dressing of the Marquis de Castellane, who in his time modernised the house, built about 1532 by Jean le Breton, Secretary of State to François I. The château encloses three sides of a hollow square, the wings having arcaded loggie on the ground floor, whilst the principal corps de logis has solid walls and windows. In the eighteenth century the arcaded openings were closed up, the windows stripped of their mullions and transomes, and sham windows painted between the real ones. This has now all been amended, and the house shows the admirable design and detail, which is of a very high character, that it received in the time of le Breton. It is worthy of notice that the entrance front of the main corps de logis faces north, so that the arcaded loggie look respectively east and west. South of the house is a fine formal garden, with a canal on one side that is continued as a quasi-moat in front of the house. On the other side is a fine terrace walk and avenue at a high level, overlooking the garden. Much of the old enclosing balustrading of the garden has been destroyed, but Mons. Carvallo is engaged on its restoration. Part of the south front and a square tower at the south-west angle date back to the fifteenth century, and possibly some of the foundations may even belong to the time when Philip Augustus and Richard Cœur de Lion signed a treaty in 1189 at Villandry, or Coulombières, as

" THE ARCHITECT " STUDENTS' SKETCHING AND MEASURING CLUB.



A CHIMNEY AT THE CHORISTERS' SCHOOL, SALISBURY.



A COTTAGE CHIMNEY AT WESTERHAM, KENT.

From Drawings by "Plato."

it was then known. The interior of the château has been largely refitted in the eighteenth century, and there is some quite admirable work of that period, particularly in connection with the principal staircase, which we understand Mons. Carvallo wisely intends to retain. Before leaving Villandry the party visited the stables, which are an excellent example of eighteenth-century design, and the parish church, of eleventh and twelfth-century date, which is remarkable for the internal pendentive dome of Byzantine type over the chancel and a stained-glass window of 1543, with a portrait of Anne Gedouin and a sketch of part of the château.

From Villandry the excursionists proceeded to Azay-le-Rideau, whose famous château, the most exquisite gem of the Loire Valley, is now a *monument historique* and the property of the State, by whom it was purchased, with the park, in 1905 for £8,000, but without the furniture and art collection that had previously been contained in the house until sold separately. The château is now under the care of the Department of Education and Fine Art and is being utilised as a museum of Renaissance art.

The early history of Azay-le-Rideau is legendary if not mythical. It is said that the first château was built here in 1255 by one Hugues Ridel or Rideau, and it is related that the castle and town were sacked and burnt by Charles VII., when Dauphin, in revenge for an insult offered him by the garrison. The veracious history of the château commences with the erection of the present building about 1518 by Gilles Berthelot, from whom it was confiscated by François I., and afterwards became the residence of Gabrielle d'Estrées.

Small though it is, there is something peculiarly enchanting about the proportion and refinement of Azay-le-Rideau that makes its composition, enhanced as it is by its setting, wonderfully effective and places this château on a higher level of graceful beauty than any other in the Loire Valley. The stables and servants' quarters, erected in the seventeenth century by Henri de

Beringhem, received full attention from the sketchers, although in artistic merit far inferior to the château itself, but the church, an interesting example of eleventh-century work, with additions of the fifteenth, sixteenth, and seventeenth centuries, was neglected.

Leaving Azay-le-Rideau with considerable regret, the excursionists then rode on to Langeais, a small town on the right bank of the Loire, dominated by the feudal castle, erected in the middle of the fifteenth century by Jean Bourré, in an enclosure which contains the ruins of the *donjon* built by Foulques Nerra in 990, and, therefore, the oldest of French castles. The Château of Langeais belongs to the Institut de France, to whom it was bequeathed by Mons. Jacques Siegfried, who had restored and completely furnished the interior with an interesting collection of fifteenth-century furniture and appointments, some original, but mostly copies, French, Italian, Spanish, and Flemish. The visitors were not allowed to sketch within the precincts of the château, but were conducted with rigorously-restricted movements through the interior.

There are some old houses in Langeais, including one in which Rabelais lived, and the church has a fine tower of ninth and twelfth-century date, but the body of the edifice has been lately rebuilt in hideous fashion.

On the way back to Tours a brief stay was made at Luynes, whose finely-situated château is placed on the top of a high hill, approached by a long series of steps that took up a considerable portion of the visitors' time and left but little for viewing the building. Of this there is not much of domestic as distinguished from military architecture, beyond a graceful building in brick and stone erected in 1465, flanked by an octagonal staircase tower. Fine views are obtained from the ramparts, and there is an interesting fifteenth-century chapel in carved timber work in the precincts. The remains of a Roman aqueduct near Langeais did not attract the excursionists, nor was there time to visit the sixteenth-century houses in the little town.

An early start was made on Saturday for Saumur, the train to which city was only caught at the last minute by a bold rush and deferment of payment for the collective ticket of the party. Some time was spent in Saumur, but not sufficient to allow of much sketching after inspection of the town hall and one or two other buildings near the river. The castle was too far off to be visited.

As the steam tram to Montsoreau indicated in the programme did not run at the time stated, horsed vehicles had to be engaged, and hence the journey to Candes occupied more than the allotted time, and the stay there was shortened to ten minutes, all too little for this magnificent unrestored church of Saint-Martin, which, with its lofty nave and aisles vaulted at the same height, partakes of the character of a German hall-church. The principal porch is remarkable for a single central shaft carrying the vaulting, and machicolated battlements give it quite an uncommon appearance. There are some finely sculptured figures to the portals of thirteenth and fourteenth-century date, though many are headless. Internally traces of colour decoration on the figure sculpture suggest that the walls, now bare, were also coloured. No more than a glance could be given at the fifteenth-century gendarmerie at Candes and the château at Montsoreau.

After *déjeuner* at Montsoreau, the members drove on to Fontevrault, the abbey of which is now a prison and, therefore, only visited under surveillance and sketching forbidden. The effigies of Richard I., Henry II. and his queen, and the mother of Henry III. were shown, the cloister, with its François premier work, and the church, now in course of restoration; also the chapter-house, with a collection of fragments from the twelfth century onwards, and an interesting model of the whole abbey. In the town of Fontevrault are one or two picturesque houses, but it was generally felt that a larger part of the day might have been more profitably spent at Candes and Montsoreau than at Fontevrault. The party drove back to Saumur and thence by train returned to Tours.

No organised visits were made to the many buildings of interest in Tours; the cathedral, the bishop's palace, the Hôtel Gouin, the house of Tristan l'Hermite, the tour de l'Horloge, the tour Charlemagne, the new Hôtel de Ville, the Chamber of Commerce, and many old houses and churches had to be visited early in the morning before the time of catching trains.

The programme of the excursion ended on Saturday, August 19, and the next day most of the members journeyed together to Paris, whence half the party returned direct to England viâ Boulogne and Folkestone, others remaining from fear of being unable to get home on account of the railway strike or from a desire to "taper off" with a little further sojourn in France.

NOTES AND COMMENTS.

The present position of the building trade is reflected with accuracy in the annual reports of manufacturing companies dealing with goods used in building. Of these the annual meeting of shareholders of the Leeds Fireclay Company, Ltd., afforded a striking object-lesson. The company during the past year could not quite earn its debenture interest, much less provide a dividend for its shareholders, and the chairman gave some statistics relating to the building trade that tended to explain the slackness of the company's business. He said that during the last few months the demand throughout England for the chief articles which the company produced was such that that company alone could almost have executed the orders. A recent Blue-book showed that whilst in 1900 there were 77,000 bricklayers and labourers in certain unions, in 1909 the 77,000 had come down to 42,000. Although in trades outside the building group there had been an increase in membership in 1910, the decrease in the seventy-one unions in the building trade was 3.5 per cent., following a decrease of 8.2 per cent. in the same trades the previous year. The membership at the end of 1910 was the lowest recorded since comparative statistics were first prepared.

Over-building was not the cause of the present depression in the matured opinion of the directors of the company, who had come to the conclusion that it was not a question of over-building, because depression from this cause never extended over ten years. There was something abnormal about the position, and the directors felt that it was not only the pin pricks of legislation in regard to the property market, but it was the fear of what those pin pricks were going to lead to later on. They had nothing to do with it themselves except to suffer just as all shareholders in similar companies were suffering.

Legislative burdens pressed heavily upon manufacturers, and threatened to do so even more severely in the near future. Workmen's compensation was growing at an enormous rate, and for the present year they would be paying £2,000 in that direction. If the Insurance Bill passed in its present form, or anything like it, the result would be a further increase of 25 per cent. on the charges mentioned. That was a serious charge upon a company and a trade which was being injured and hurt by legislation in other directions. They had entered a strong protest against such a proposal without consultation with large employers of labour, and they had asked Mr. Lloyd George pointedly how it was possible in a trade which was only employing half its plant, with all its workmen on short time, and no possibility of increasing prices, to find the £2,000 a year which the Act would impose upon them? Shareholders had many facilities for making their influence felt, and it would be a great mistake if they did not do everything possible to stop the Bill. As drafted it was a bad Bill, and in their own trade was not calculated on a proper basis. Its provisions in regard to unemployment in the building trade were ludicrously inadequate. Another fact frequently lost sight of was that in cities such as Leeds, where the Corporation were large employers of labour, the cost of insurance would mean the addition of a penny or even 1½*d.* in the pound on the rates.

The British Archæological Association and the London and Middlesex Archæological Society have joined hands in promoting a congress which will be held from September 25 to September 30, to afford, as far as possible, a chronological survey of London and its antiquities. Each day will be devoted to the study of a particular age in the history of the city and county, and after an opening address visits will be paid to such parts of London as illustrate the period under consideration. Thus, the prehistoric, Roman, and Early Norman period will involve the study of the antiquities in the Guildhall Museum, the remains of the London wall, the Roman bath in Strand Lane, and the Tower. Norman and mediæval London will include such places as St. Bartholomew's, Smithfield, the crypt of Bow Church, St. Olave's, where Pepys worshipped, the Charterhouse, and Southwark Cathedral. Tudor and Stuart London will be represented by the Inns of Court and the Savoy Chapel Royal; and Stuart and Georgian London by a few of Wren's most famous churches, the halls of the livery companies, and the Mansion House. The arrangements are in the hands of Mr. Allen S. Walker, and the presidents of the congress will be Mr. Charles E. Keyser and Sir Edward Brabrook. It is proposed that the presidential address shall be delivered after a luncheon held at the Fifth Avenue Hotel on September 25.

Mr. F. W. Lippmann writes to the *Times* calling the attention of English art lovers who are at present travelling on the Continent to the excellent little exhibition of works of art of the tenth to the eighteenth century which is held at present at the Landes Museum at Stuttgart. The management of the museum has brought together, mainly from churches at Würtemberg, a remarkable collection of Church plate, clerical vestments, and wood carvings. The silversmiths' work includes the wonderful gold and enamelled antependium from Gross-Camburg, which dates back to the early tenth century, and is similar to but rather richer and finer in preservation than the piece in the Musée Cluny, which came from the treasury of Basle Cathedral. This object has not been exhibited for many years. Perhaps more important still is a wooden tenth century lectern composed of the four Apostles (full figures), with their emblems, upholding the desk. This wonderful object, which stands four feet high, is in perfect preservation, and still shows the original colouring. Many of the other objects are excellent and certainly deserve a visit. The exhibition closes in October.

THE BRITISH MUSEUM.

According to the "return" of the British Museum, issued last week, the total number of visitors to the Bloomsbury and Natural History Museums in 1910 was 739,837, a good increase over the total in 1909 (708,836), though not quite equal to that of 1908 (743,413), which was the year of the Franco-British Exhibition. The total for weekdays was 670,104 (the highest figure since 1905), and for Sundays 69,733 (the highest on record with the exception of 1908). The number of visits by readers to the reading room was 219,274, an increase of 1,300 on the previous year, and the third highest in the records of the museum. The daily average was 726. The visits of students to other departments of the museum show a decrease of about 500. Visits to the sculpture galleries showed a large increase, while visits to the departments of manuscripts and Oriental printed books and manuscripts showed decreases, and those to the department of prints and drawings were identical with the figure for the previous year.

The return mentions that work was in progress throughout the year on the British Museum extension building, that the main external structure of the building was almost completed, and that plans for the internal furniture and fittings were prepared. Another section of the reconstruction of the roof with fire-resisting partitions was taken in hand, and the usual work of renovation and repair was carried out.

In the department of Egyptian and Assyrian antiquities the most noteworthy addition during 1910 was a handsome roll of papyrus about 122 feet long by 1 foot 8½ inches wide, presented by Mrs. Greenfield. It is inscribed with a series of spells, prayers, hymns, &c., in the hieratic character, which form the chapters of the great funerary work of the Egyptians called "Per-em-hru," or the "Book of Coming Forth by Day," now generally known as the "Book of the Dead." It is illustrated with pen and ink vignettes of great delicacy and spirit.

This papyrus was made for Princess Nestanebasher, the daughter of a high priest king at Thebes, about B.C. 980, and was buried with her in her tomb. During the troubles which came upon Thebes soon after her death, her mummy, her papyrus, and all her funerary furniture were removed with the mummies of the kings and queens to a tomb at Der al-Bahari, where they remained hidden until discovered by the natives some time before 1870.

The roll includes several new texts, and is of unique interest for the sidelight it throws on the religion of the period. One of the most important purchases for this department was a fine foundation deposit brick in blue glazed porcelain from the temple of Rameses II. at Bubastis, XIXth dynasty. On each side are the royal names and prenomens of Rameses II., King of Egypt, B.C. 1330, and round the sides run the king's titles or "strong names." This is the largest and finest brick of the kind hitherto discovered. There is also a small brick from the same deposit and place inscribed with a text which states that the temple was built for Rameses II. by one of his sons, called Kha-em-Uast, the famous magician, whose statue is already in the museum. Another purchase was a massive stone sarcophagus of Qem-Ptah, a man of very high rank, who filled several offices, both ecclesiastical and civil, at Memphis, and flourished about the middle of the Ptolemaïc period, B.C. 200. The cover is inscribed with a series of religious texts and prayers based on certain chapters of the Book of the Dead. The inside of the sarcophagus is decorated with figures of all the gods which were regarded as gods of the dead at that period, and with figures of several of the Thirty-Six (or Thirty-Nine) Dekans. These are arranged in panels, and by the side of each god is a short text which explains his duties in connection with the dead. The whole of the outside is occupied with the scenes and texts of the famous Guide to the Other World, which the Egyptians called "Am-Tuat." This book is based upon ancient works, such as the "Book of the Two Ways," and contains ideas and beliefs which are as old as the earliest dynasties. According to these the Other World was divided into ten portions. At each end of the group was a vestibule, which communicated directly with this world. The book "Am-Tuat" was intended to make the spirits of the dead acquainted with the various regions through which they had to pass, and to supply them with pictures of the beings which dwelt in them, and generally to guide them to the Fields of Peace. It taught that the righteous were rewarded by Osiris, and that the wicked were slaughtered by his executioner Shesmu, who hacked their bodies in pieces and cast them into pits of fire.

Apart from any acquisitions to the department of Greek and Roman antiquities, the past year has seen the end of an important re-arrangement in the Sculpture Galleries. The remounting of the central group from the west pediment of the Parthenon, designed and begun last year, has been completed by Mr. A. H. Smith. The torsos have been raised to their proper heights, in relation to the base line, on shafts of Istrian marble, the poses of the fragments have been re-studied and corrected, and the figures are set on pivots so that they can be turned about their vertical axes. The figure hitherto known as Victory has been transferred from the east pediment to its original place in this group. A colossal head of Athena, which is thought to represent a Pheidian type, has been moved from the Græco-Roman gallery to a place in the Elgin room. It may also be mentioned that the publication of "The Sculptures of the Parthenon," by Mr. A. H. Smith, consisting of collotype and photogravure plates and text in folio, was completed. It is sold at £5 15*s*. There have not been any sensational additions. The best is a fine stone and marble relief of the fourth century B.C. from Attica, the principal female figure being in unusually good preservation.

The department of British and Mediæval Antiquities has benefited, as usual, by the generosity of a large number of private donors, in some instances through the valuable agency of the National Art-Collections Fund. Among the antiquities specially mentioned are a number of objects of Gothic workmanship from the Crimea and the Balkan Peninsula; early maiolica from Orvieto; several articles obtained by the British and Chinese troops in Tibet; Chinese pottery; and a set of jade tablets from the Temple of Ancestors at Pekin.

In the department of Coins and Medals considerable additions have been made to the collection of Macedonian coins, with a view to a catalogue, now in course of preparation. In all, 1,548 coins and medals were acquired by the department in the course of the year, of which 499 were received by gift. Sixty-five coins, some of great rarity, were derived from a hoard found in Hampshire, dating from the middle of the second century. Another interesting group consisted of coins struck during the revolt of Judea in the reign of Hadrian. Among the English coins acquired were a Bristol halfpenny of Henry VI. and a quarter-angel of James I., both believed to be unique.

The department of Prints and Drawings was exceptionally fortunate in the generosity of benefactors during the year. The bequest of Mr. George Salting included works, many of them of the highest importance, by Dürer, Holbein, Canale, Rembrandt, and other Dutch masters, François Clouet and his school, Gainsborough, Turner, Constable, and De Wint. The Wegener collection of 147 Chinese paintings, acquired largely by the subscriptions of friends, gave the museum a series of admirable specimens of Eastern art, which it would be hard to match out of China. Eleven highly finished drawings by D. G. Rossetti were presented, and the National Art-Collections Fund (among other benefactions) secured for the museum six fine designs for ceramic and goldsmith's ware by Alfred Stevens. Under present conditions of prices of works of art, it is only through such liberality of private benefactors that the British Museum can hope to maintain its position in the first rank of existing collections. The most important purchase during the year (apart from the part-purchase of the Wegener collection) was that of a large number of etchings by the late Sir F. Seymour Haden, P.R.E., which had been specially brought together by the artist and destined for the British Museum.

Two hundred and thirty-two platinotype photographs of ancient or interesting buildings and monuments in various parts of the United Kingdom, in continuation of the National Survey and Record, were presented by the Secretary on behalf of the contributors to the Survey and Record.

The department of Manuscripts acquired a considerable number of historical papers (chiefly from the sale of a further instalment of the Phillipps Library). The most important acquisition of this kind was the original autograph Trafalgar memorandum, written by Lord Nelson on October 9, 1805, to explain the tactics which he intended to adopt on meeting the allied fleets of France and Spain; this, having been bought for a large sum by Mr. B. M. Woollan, of Tunbridge Wells, in 1905, passed (in accordance with an agreement made by him with the trustees) into the possession of the nation as a free gift on his death in December 1909. Other valuable gifts were the original diary of George Romney, recording sittings for portraits, 1776-1795, which was presented by Mr. T. Humphry Ward, and the original MS. of a portion of John Ruskin's "Laws of Fésole."

In the department of Printed Books the principal purchases have been in the category of Incunabula (books printed before the close of the year 1500), in order that the catalogue of Early Printed Books in course of preparation might be as complete as possible. Fifty-nine books printed in the fifteenth century, and eighty-five books printed before 1640 were acquired. Among the donations are "Photographs of Palace Buildings of Peking, compiled by the Imperial Museum of Tokyo. Collotyped from the negatives by K. Ogawa. With explanatory notes in Japanese, English and Chinese"; and "Decorations of Palace Buildings of Peking. With eighty plates." Tokyo, 1906.

THE DESTRUCTION OF CEMENT AND CONCRETE.

(Contributed.)

(Concluded from last week.)

We now come to the experiments made by Professor White in the laboratories of the University of Michigan. As it is probable that the majority of the readers of this journal are more interested in the quantitative results than in the methods employed, those who wish to study the details of the work may refer to the Proceedings mentioned.

The linear shrinkage of bars of neat cement, kept constantly in the air, is given below. Four different brands of commercial cement, all passing standard specifications for constancy of volume, were used. The volume of the bars varied with the humidity of the air, but on the whole the shrinkage of all the bars was reasonably uniform. In all cases an average is of six tests, except for the two years' test, which is an average of five, and the one and four years' tests, which are averages of three.

Test on Neat Cement.

Time in Air	Shrinkage of Cement %
7 days	−0·109
28 days	−0·190
6 months	−0·236
1 year	−0·270
2 years	−0·289
4 years	−0·322

Thus Professor White has shown that one-third of the shrinkage takes place in the first week, more than half of it in the first month, and almost all of it in the first year. He reminds us that a shrinkage of 0.322 per cent. amounts to nearly 4 inches on 100 feet, and shows clearly why it is not possible to use neat cement on interior floors and wall finishes.

Neat Cement alternately Wet and Dry.

From numerous results we may take the following important conclusion: "From the standpoint of structural stability it is rather disquieting to learn that these cements which had remained in water without any measurable change in volume from their first to their third year shrank 1.7 inches on 100 feet when they were dried in air, and in twenty-four hours when again brought in contact with water, expanded 1.5 inches, and within a month had expanded 1.8 inches, calculated on an initial 100-feet measurement."

Changes, on a somewhat smaller scale, but similar, took place in the length of bars of Portland cement mortar, mixed in the proportion of one part by weight cement to three of sand. In four of the middle bars one of the best known commercial waterproofing compounds was incorporated, according to the manufacturer's directions. There was no real difference in the behaviour of these bars and those not waterproofed. Various comparisons were also made between bars of neat cement and those made with sand under identical conditions, but the results are too lengthy to be included here.

Practical Results.

As it was thought possible that it might be urged that all of the tests were made on small bars manufactured under College conditions, Professor White used a part of the cement sidewalk of the University of Michigan, which had been down for twenty years. He also tested a piece of cement stucco which came loose from a brick porch after only two years' service. He found that the variations in volume with change of moisture content did not disappear with lapse of years, for changes of 0.05 and 0.06 per cent. have been observed in bars cut from sidewalks which have been laid down for twenty years.

Although the above changes may seem small, let us see what they mean in practice. A wall of neat Portland cement 100 feet long is anchored at each end to immovable supports. Let it be under water for three years. At the end of that time it would, if free, have expanded 1.2 inches. Since it cannot move, the compression stress will be 0.1 per cent., which, assuming a modulus of elasticity of 5,000,000 lb., means 5,000 lb. per square inch. Perhaps the cement could withstand that pressure.

Suppose now that the cement becomes dry. It should contract 1.7 inches, but since it is not free to move there will be developed a tension stress of 7,500 lb. per square inch. This is several times more than that which the material can stand. *The wall will crack.*

If the neat cement wall had been originally allowed to harden in the open air, it would, if free, have contracted 0.25 per cent. Since it was anchored there would be a tensile stress of 12,000 lb. per square inch. It is, therefore, obvious why neat cement is not used in practice.

While we have no experimental data *re* the changes of volume of leaner concrete, it is not conceivable that gravels and sands which have withstood the action of the weather for centuries without disintegration can change in volume much when wet and dried. It is known, however, that even the best steel will not stand, indefinitely, alternate tension and compression stresses when the stress is near the elastic limit of the material.

The Case of Stucco.

Examples are known where stucco has remained perfect after an exposure of half a century to the weather. There are many instances, according to Professor White, where stucco has failed miserably after five years. It has been suggested that the old stucco was made with natural rock cement, but the one test on natural rock cement shows a greater volume change than the tests on Portland cement. It is more probable that the old stucco has survived because of the lower proportion of cement. When the metal lath was introduced to support the stucco there was a coincident drop in the price of Portland cement, and richer stuccos became common. This was unfortunate. A volume change of an inch on 100 feet must cause cracks. They may be only hair cracks, say at every foot, but the protection against corrosion, which the stucco is supposed to provide, disappears. A leaner stucco means freedom from cracks.

Professor White discusses at some length the case of interior floors and explains why it is that shrinkage cracks appear, and the individual slabs curl up at the edges in the effort to relieve the shrinkage strains.

Sidewalks and Pavements.

The influence of temperature upon these is well known, but the chief factor which affects their behaviour is the weather. The experiments in the University of Michigan suggest that a $\frac{1}{4}$-inch expansion joint is required every 10 feet. This allows for change due to temperature and the moisture. The whole subject of the effect of time and weather upon these materials seems to require much closer scientific investigation than has yet been given to them.

From the data already presented it is evident that concrete undergoes a shrinkage as it dries. The conditions are not changed if there is steel reinforcement, provided that the ends are absolutely rigid. If the ends of the beam yield at all, and the concrete adheres to the steel, the strains will be adjusted between the two. The steel will be in compression and the concrete in tension, but to a lesser extent. There is required, however, more information concerning the values of the stresses, and Professor White says, "There is every probability that there are important stresses in all reinforced concrete work due to volume changes in the concrete of which the designers have had no knowledge. These stresses may have been to blame for some of the collapses which have occurred in reinforced work, and the smaller number of such collapses may be more a tribute to the value of the factor of safety than to scientific knowledge."

General Conclusions.

The following are the general conclusions on the whole subject arrived at by Professor White:—

1. Concrete hardening in a moist place and remaining continually moist throughout its life expands slightly, but the compression stress developed is not likely to be injurious.

2. Concrete hardening in air, and remaining continuously dry, contracts. This causes a tension stress, which is harmful. It introduces an error of unknown magnitude into the calculations of all reinforced beams. It is responsible for the cracks in top coat of interior cement floors. Fortunately most of the bad effects are evident within three months.

3. Cement sidewalks, pavements, and stuccos exposed to the weather contract when dry and expand when wet. The richer the mixture in cement the greater the volume change. There is a differential expansion between the top coat and base of sidewalks which is often sufficient to split the two apart. So also rich stucco may be split from brick. In damp climates irregular expansion occurs apparently for as long as twenty years.

4. Rich stuccos will inevitably crack through expansion and contraction, and may easily be ruined. The few experiments made indicate that integral waterproofing compounds do not prevent or lessen the changes in volume. The only safety seems to be in using a lean mixture whose volume change is slight. Also a stucco coat is inadequate protection for a metal lath. If rich enough to keep water out it will crack. If lean enough to avoid cracks water will go through it freely.

From the above it will be fairly obvious that there is ample room for more research work, which will provide quantitative results upon which calculations may be based. There is no doubt that a complete study of the behaviour of cements and concretes under working conditions is needed.

Mr. A. V. Rowe, architect, Worcester, has prepared plans for a Council school at Redditch for 760 children. The cost is estimated at £6,452, or nearly £8 11*s*. per place. The design has been accepted by the Worcestershire Education Committee.

MUNICIPAL ENGINEERING AS A PROFESSION.*

There no longer exists the need to drive home the fact that municipal engineering is a distinct profession. There was a time when the statement would have been met with a shrug of the shoulder or a curl of the lip. To-day no dispute is possible. The profession is recognised universally, and its separate existence is proved in that the Legislature is the one notable exception that has not yet awakened to the fact that this very lusty infant is among us and is making vigorous outcry for its rights. The pedigree of this interesting infant is lost in obscurity. Road foremen, inspectors of nuisances, village grocers, ex-policemen, drapers and civil engineers of the old school are among its progenitors, and it is possible that each of these crossings has had its healthy influence upon the matured product.

I am not going to weary you with any of the claptrap which is talked about the nobility of the profession. Paragraphs on this read well as the peroration to a presidential address, but they mean nothing. Every useful profession honestly practised is as noble as any other, and, after all, men do not usually enter professions simply because they are noble. A means of livelihood is the first need, and opportunity finds it for us. There is certainly no profession in which the possibilities of doing good to one's fellows are so great as that of municipal engineering, but it can scarcely be claimed that the engineer had that fact in view when he competed for his appointment. The inspector of nuisances stands in the same position, and the soft sawder of the professional sanitarian is obvious. To speak of the inspector as a hero who girds on his armour and goes forth to fight the battle in the high cause of humanity is, again, just merely clap-trap. I have met inspectors whose ideals were not quite so high as this.

The Sanitary Officer.

While speaking of the sanitary inspector, a few words on his behalf may be said. There are, of course, inspectors whose sole work is to carry out the orders of the medical officer of health. They are a kind of sanitary police, in whom the organ of smell is popularly supposed to be abnormally developed. They call on cases of infectious disease, and may possibly convey the various complaints wholesale about the district—precisely as the doctor may do. No precautions are taken, and the inspector goes cheerfully from small-pox to diphtheria, from diphtheria to scarlet fever, and so on, calling by the way for refreshment and physical sustenance. His lengthy journeys in rural districts compel this, and I am finding no fault with him. His other duties are to investigate complaints and to furnish his medical officer of health with sufficient detail to make a formidable report to be prepared and signed by the latter gentleman. There is, however, another class of inspector whose duties include the planning and supervising of engineering works. He is mostly known as a sanitary engineer, although no such appointment is officially recognised. The word "sanitary" is, however, damning, and he is regarded as quite inferior to that official whose whole duties may consist of the maintenance and repair of macadam and gravel or flint highways. The matter is one well worth the consideration of the profession in general, and the hand of fellowship should not be refused simply because of the restricted definition of a word which really embraces very much.

The Consulting Engineer.

Municipal engineering is a profession which will some day be found to have usurped the whole field of engineering, except that form known as government engineering. The consultant will, I am afraid, have a very bad time; but the inevitable has to be faced. As matters are now, the municipal man is not encouraged to prepare schemes of any magnitude, and many who are really capable—there are, of course, quite as many (if not more) who are not capable—conceal their knowledge. There is always trouble about payment where the salaried officer is concerned, and when a fee is arranged it is usually only a proportion of that which the consultant would be paid. Honorariums are merely a means to an end—the end being the payment of an amount equal to about one-tenth of that which is morally due. To come back to my point, however. In every direction now municipal trading is being extended. Municipal schemes to run means more responsibility for the officer, and the necessity for a better class of officer—a more highly-trained and more intelligent man. This, again, means higher salary, larger staff, and better accommodation, together with the less frequent requisitioning of the consultant. It may be urged that never was the consultant so in evidence as during the last few years. It is quite true, but it has to be remembered that he is largely engaged in installing first schemes. Extension will not, in scores of cases, go to him; for the necessity for a highly-trained man to run a concern does away with the necessity for another highly-trained man to repeat, to improve or to extend what has already been done.

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* A Paper read by Mr. B. Wyand at a Western district meeting of the Institution of Municipal Engineers held at Worcester.

"Improving the Status."

There has been much talk of late about improving the status of the profession. The term is a misleading one. What is wanted is to improve the status of the members of the profession, and every man who realises that he is an adviser, and not a servant, is working on right lines. Municipal engineers must realise their own importance. I do not mean that they should cultivate deep voices and contort themselves into ponderous attitudes. I mean only that they must feel their responsibilities, and recognise the fact that supremacy is their place in local life. Even the chairman of the council is merely a cypher when contrasted with the municipal engineer, and he should, as far as possible, be made to feel this. The chairman may be the better man in many ways; but when it comes to engineering he should be made to recognise the fact that he must play fourth fiddle and must feel happy that he has not been relegated to the orchestral triangle. A man is estimated in this world much at the value he places upon himself, and the humble, shrinking individual who is led by his council is never likely to command either respect or a periodical increase of salary. The blatant gentleman who boasts freely is much more likely to succeed for a time; but his day is not usually a long one, and he is the last man to make capital out of a reverse of fortune.

Security of Tenure.

I will say nothing harsher of councillors than that they are entirely unnecessary, and I am sadly afraid that security of tenure will be difficult of attainment so long as district councils exist. It is not to be expected—it would be foreign to human nature—that councillors would welcome the continued services of a man with whom they had quarrelled and of whose services they had endeavoured to rid themselves. The life of the officer would be a miniature hell; indeed, things would be made so unpleasant for him that he would welcome resignation. There is a popular fiction current to the effect that the sanitary inspector is protected by the Local Government Board. He has no more real protection than the surveyor, and councillors may do as they please with him. The sole duty of the council should be the making of the rate, and this could be as well done by one man as by twenty—the collector could, in fact, do it. Directly a council concerns itself on engineering matters it becomes ridiculous, and the effect of its interference is to hamper the technical officers. These should be appointed by a central controlling authority, and should be removable only for misconduct, or at an age when a pension (and a sufficient one) falls due. Their appointment would, in fact, be a life one, with promotion to larger appointments as vacancies occur. They would be responsible to the central department only, just as are police and post office officials. What would happen were these classes appointed and dismissed at the pleasure of small local bodies? Perhaps, when councils no longer exist, the municipal engineer will be appreciated at his true worth. Until then but little can, I fear, be done.

Salaries.

The question of salaries is all-important. Municipal engineers are usually wofully underpaid and overworked. Higher salaries and less hours of labour would reduce the ranks of the unemployed, and the overcrowding question would not recur for years. There would be room for thousands if proper and sufficient staffs were engaged. £150 a year should be the minimum salary for even a deputy or chief assistant.

Qualifications.

The full qualifications for a municipal engineering appointment are so many and so varied that no one man could satisfy a standard. The *essential* qualifications would place no light tax on a man's abilities, and none should be appointed without these. Some towns have, I believe, passed resolutions to the effect that no man should be appointed who has not passed the examination of the Institution of Civil Engineers qualifying for at least associate membership. This is, of course, pure nonsense; indeed, so far as municipal engineering goes, the examination is three-fourths sheer waste of time. While there are special examinations for municipal engineers, it is as ridiculous to ask a man to pass another as it would be to ask a judge to pass in surgery because he might on some occasion have to hear an action in which a broken leg was introduced. That some limitation should be imposed upon the appointment of quite unqualified men no one will deny, but it is equally important that the test to be undergone shall be a reasonable one. It is to be hoped that councillors will not allow themselves longer or to any further extent to be hoodwinked by men whose interest is with an alien profession. It must not be forgotten either—and I cannot lay too great a stress upon it—that civil engineering as practised is only one branch of municipal engineering. A calculating boy or similar wonder need not necessarily make a good municipal engineer.

I have no hesitation, in conclusion, in placing municipal engineering at the top of all the professions. It is one in which the duffer can never shine, and there is no other profession of which this can be said, except perhaps that of the barrister, and he, unless possessed of special talent, has no chance unless he be promoted to the bench. The time has arrived when the municipal engineer must take the place which is his by right, and with two active bodies to voice his interests, both working now upon similar lines, great strides must inevitably be made during the next decade or two.

PETROL AIR GAS.*

During the last few years the problem of lighting places in the country outside the radius of the gas or electric light supply has received considerable attention from inventors. The increased facilities for obtaining petrol, due to the growing demand for this fuel for motor cars, has led experimenters to investigate its possibilities as a medium for producing gas for lighting places which have no central source of illumination.

The idea of supplying carburetted air for lighting purposes is nearly a century old, but was of no value from a practical point of view until the introduction of the incandescent mantle made it possible to use a gas which was comparatively weak in hydrocarbon and had no particular lighting value *per se*. The failure of the old machines was due to the exceedingly high cost of the light when obtained from a luminous flame (necessitating as it does the use of a gas very rich in hydrocarbon), and also to the fact that a gas so rich in vapour could not hold its vapour at temperatures as low as those often met with in practice, with the result that the petrol was deposited in the pipes and lost substantially in illuminating power. But the introduction of the incandescent mantle allowed the use of a gas which had no pretensions to illuminating power, but was a gas whose sole function was to supply the highest possible temperature at the point of combustion. In fact, a gas so low in petrol vapour as 1½ per cent. can be used, whereas the old flat-flame system demanded a gas containing about 12 per cent. to be of any use. The best proportions of vapour to air the author considers to be between 6 and 10 per cent., the reason for which he will endeavour to show.

To arrive at any conclusion as to the best mixture to employ one must consider, side by side with the laws of evaporation and the physical properties of the hydrocarbon used, the conditions the gas must fulfil in actual practice. The main feature of the gas must be its inability to deposit petrol in the system at any temperature it may meet with in the service on its way to the burners, and the next consideration, the author considers, should be the impossibility of combustion of the gas in the system itself, *i.e.*, one should if possible deliver a gas which insures that even if the gauze of a burner perish or a flame in any way be carried back into the service, explosion of the apparatus would be impossible. The following considerations are essential in examining the proportions which fulfil these conditions.

Petrol consists in the main of the lighter hydrocarbons of the paraffin series having the formula $CnH2n + 2$; in fact, the petrol used for lighting purposes consists almost exclusively of pentane (C_5H_{12}), hexane (C_6H_{14}), heptane (C_7H_{16}), and traces of octane (C_8H_{18}), in varying proportions according to the specific gravity and source of the fuel. For instance, from an analysis given by the Anglo-American Oil Co. their

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* A Paper read by E. Scott-Snell, Associate Member of Council before the Society of Engineers.

"Anglo-Special Spirit for Gas Making," sp. gr. 0·680, upon fractional distillation comes over as follows:—

Probable Composition Judging from Boiling Points.

1 per cent.	at 50 deg. C.	Pentane and Hexane.
27 "	" 60 " "	
28 "	" 70 " "	Hexane.
19 "	" 80 " "	Hexane and Heptane.
12 "	" 90 " "	
6 "	" 100 " "	Heptane.
3·5 "	" 106 " "	Heptane and Octane.

As the highest efficiency is given by a mantle when raised to incandescence by a gas which gives the highest possible temperature at the point of combustion, and this is synonymous with the mixture giving complete combustion, it is easy to find this mixture from theoretical considerations. Taking hexane, which is the most important constituent of the petrol used for lighting purposes, the equation of complete combustion is as follows:—

$$2\ C_6H_{14} + 19\ O_2 = 12\ CO_2 + 14\ H_2O$$

from which we gather that

2 vols. of vapour require 19 vols. of oxygen
contained in (19 × 4·81 =) 91·3 vols. air

$$\therefore\ 100 \text{ vols. mixture contain } \frac{200}{92{\cdot}3} = 2{\cdot}17 \text{ per cent. of vapour.}$$

Similar calculations give as the mixtures for complete combustion:—

Pentane	sp. gr. 0·626	2·53	per cent. by volume.
Hexane	" " 0·663	2·17	" "
Heptane	" " 0·688	1·86	" "
Octane	" " 0·719	1·64	" "

Anyone acquainted with the theoretical aspect of internal combustion engines knows that the greatest explosive effort is given with substantially this mixture of air and vapour. In practice slightly more air is used to ensure complete combustion. The undesirability, then, of supplying this gas direct through the pipes is obvious, although it is exactly the mixture required at the mantle. Practically all plants used for making this gas employ a gasometer to store a certain amount of it, either for direct use or for governing the apparatus relatively to the demand, and if fired by accident this is likely to "give furiously to think." The author has seen the results of an explosion of this kind which were, to say the least of it, impressive.

Experiment shows, however, that the upper limit of combustibility (without the addition of further air) is reached when the amount of petrol vapour in the mixture is 6 per cent. or over (Redwood puts it at 5 per cent, Sorel at 4 per cent.), and it is impossible to fire such a mixture in the pipes and gasholder. In fact, it behaves in exactly the same way as coal gas, and is absolutely safe from the danger of explosion in the system itself.

Evidently, then, to be safe we must use a mixture of not less than 6 per cent. and dilute it to the desired proportions for complete combustion at the burner head by a burner of the Bunsen type. We are immediately brought to the question of how much richer than 6 per cent. we may allow our gas to be. This is governed by the necessity of fulfilment of the first of our essential conditions, viz., that the gas must not deposit petrol in the pipes under any conditions of temperature likely to be met with in an installation. If we find what is the richest mixture stable under these conditions we shall have all our factors satisfied if we strike a balance between this and the upper combustible limit, thus giving a margin either way.

As the gas is usually generated in an outhouse, and may have to traverse a section of piping exposed to frost, one ought to employ a gas stable at some degrees below freezing-point, *i.e.*, a gas which does not become "saturated" until a fairly low temperature is reached. In dealing with this point the author proposes to set out the laws of evaporation at some length, excusing himself on the ground that the matter is only dealt with in the more advanced text-books, and then only in reference to hygrometry and in such a way as to make it very difficult to grasp for a person approaching the subject for the first time. In the author's opinion, there is room for a more simple exposition applied to the case in point. The theory is based upon Dalton's classic experiments on mixtures of gas and vapour. The conclusions he came to (which have been found correct except in special circumstances) were:—

(1) That in a space which contains a liquid and its vapour the liquid will evaporate only until the pressure of its vapour attains a definite value dependent upon temperature only.

(2) That in a space containing dry air or other gas or gases a liquid will continue to evaporate until the pressure exerted by its vapour alone is the same as if no air or other gas were present.

(3) That in any mixture the total pressure is equal to the sum of the pressures that each constituent would exert if it occupied the space alone.

The last two laws are only true in the case where the liquids are not mutually soluble. When the liquids are completely miscible, as, for instance, the various constituents of commercial petrol, the sum of the vapour pressures will be less than the sum of the separate vapour pressures, but its value is more easy to determine by direct experiment than to predict from theoretical considerations alone.

The foregoing, however, does not affect the following reasoning:—

Suppose we have 100 cubic metres of air and vapour at 760 m/m pressure and t° C., of which x cubic feet is vapour. The latter *will behave as if* it occupied the whole space alone, *i.e.*, as if it had a pressure due to expanding from x cubic metres at 760 m/m and t° C. to 100 cubic metres at t° C. This pressure would therefore be

$$760 \times \frac{x}{100}$$

If we know the vapour pressure p at the temperature t° C. (as we often do from vapour-pressure determinations) we have

$$p = 760 \times \frac{x}{100}\ .$$

from which we get

$$x = 100 \times \frac{p}{760}\ \ldots\ldots\ldots\ (1)$$

It follows from the first law that such a mixture is not on the point of condensing part of its vapour unless p is the pressure of the saturated vapour corresponding to that particular temperature. Hence the condition of stability, or otherwise, is known if we know the pressure of the vapour in the mixture and the saturation temperature corresponding to this pressure.

(To be continued.)

ILLUSTRATIONS.

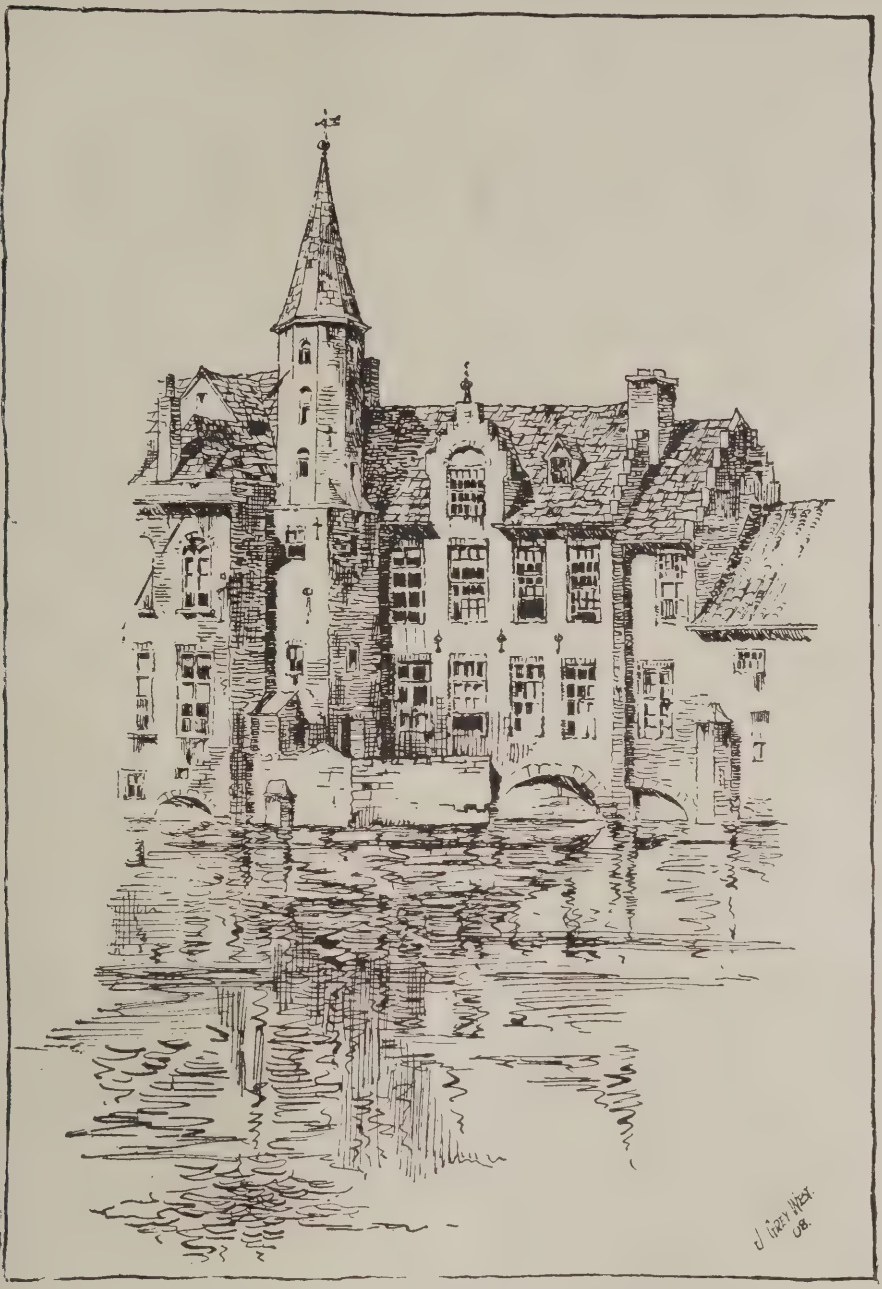
ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.

We give this week further illustrations of the château at Chenonceau from photographs taken during the visit of the Architectural Association.

CHURCH OF SS. MARY AND CHAD, LONGTON, STAFFS.

The eastern portion of this church was built in 1897 from the designs of the late Mr. J. Martin Brooks. The western portion, which was dedicated by the Bishop of Lichfield on November 5, 1910, was designed by Mr. J. Standen Adkins, of the firm of Jas. Brooks, Son & Adkins, the contractors being Messrs. Tompkinson & Bettelley, of Longton. In order to meet present requirements the west end, with the porches and baptistery, had to be entirely re-designed, but the new part of nave and aisles continued the form of the existing bays. The statues of SS. Mary and Chad, in the tympana of the porch doors, are the work of Mr. J. E. Taylerson. The marble font is by Messrs. J. Whitehead & Sons. The stone pulpit is by Messrs. H. H. Martyn & Co. The baptistery windows are by Messrs. Campbell & Christmas, who have also painted the first two of the series of Stations of the Cross. Two new windows executed by Mr. N. H. J. Westlake have been placed in the aisle in continuation of a series by the same artist commenced in the eastern bays.

The Governors of the Glasgow School of Art have appointed Mr. R. Anning Bell, R.W.S., as Professor of Design and Decorative Art, with charge of this important section of school work. Mr. Anning Bell is a leading member and exhibitor of the Arts and Crafts Exhibition Society, and an active participant in the Art Workers' Guild. He has for many years acted as examiner in the national competition among schools of art organised annually by the Board of Education. For the past six years he has had experience of the Scottish Schools of Art, first as visitor and latterly as assessor, acting for the Scotch Education Department in the award of diplomas. His work as a painter, modeller, designer of stained glass and other decorative work, and as an illustrator of books, will be familiar to our readers.



AT BRUGES.—From a Sketch by Mr. J. GREY WEST.

HE ARCHITECTURE OF LONDON HIGHWAYS.

By "VIATOR."

LUBLAND, ANCIENT AND MODERN.—ST. JAMES'S STREET AND PICCADILLY.

(*Concluded from last week.*)

THE Isthmian Club adjoins the Junior Constitutional on its western flank, and was for some years the town resi-ence of that Jewish philanthropist, Sir Julian Goldsmid. Iere, as in the Junior Naval and Military Club, the colossal orinthian order is in evidence, with an effect wholly pleas-ng in the façade now under review. Once again is the con-inuous bow-window a feature. The frontage is altogether ood, the sole adverse comment being that the frieze might ith advantage be slightly less ornate.

The St. James's Club at No. 107 dates back, as "Coventry Iouse," to the year 1764, and is an instance of the application f stucco, without detraction from the architectural qualities f the building. But the adjoining Savile Club presents a iore interesting elevation, quiet and good, with sufficient ecorative effect to hold the attention of the wayfarer.

Other adapted premises must be passed by without com-ient, excepting those occupied by the Junior Athenæum lub, situated at the north-east junction with Down Street, n a house built by a Mr. Hope some sixty years ago. he initial letter of his name is observable on the fine cast-ron railings of the original Hope House, the club extension in Down Street naturally not showing this in the otherwise similar railings. Hope House was the work of T. H. Donaldson and a Mons. Dusillon; the railings just mentioned were cast in Paris and the French feeling in the design is apparent. Generally speaking, the house is poor externally, nor does greater interest attach to the Down Street extension erected in 1887-8 from the design of Messrs. A. Williams & C. W. Simpson. The play upon Mr. Hope's name is observable in the Latin motto accompanying a carved shield and amorini over the main windows. These carvings and the red granite panelling form the sole relief to an otherwise commonplace building, but the boundary railing is the one detail undoubtedly worthy of examination.

Reference was made above to Cambridge House, occupied by the first Duke of that title; further west and near Apsley House, the second duke had his town residence, known as Gloucester House. After his death a few years ago the building was demolished, and a large block of mansions *de luxe* have been erected on the site—if, like the phœnix, as a glorified edition of its predecessor, then indeed Gloucester House must have been very poor. Messrs. Collcutt & Hamp cannot be congratulated here, as in the Strand; in fact, these mansions form one of the few displeasing frontages in Piccadilly. Carrara ware is the facing material employed, and green bands of it are freely introduced, whilst the plinth along the extended Park Lane flank is altogether in the green ware; this plinth, however, looks very satisfactory.

Respecting the façade in general, cut-up columns and architraves are not often tolerable—assuredly they are intolerable here, and the pedimented gable is too cruel for words.

The largest of the private residences are those belonging to the Dukes of Wellington and Devonshire; the latter is mainly the work externally of William Kent in the reign of George II., but it is of no artistic interest, and were it not for the entrance portico (which is of more recent date than the rest) its appearance would be an unredeemed failure. The best parts are the stone urns, acting as supporters to the entrance gates; artistic interest attaches also to the handsome central iron gates removed from Burlington House, Chiswick, one of the duke's residences now occupied as a private asylum. It is unsatisfactory, however, to see these gates set up merely for show, and their appearance would be improved if a carriage entrance were formed in connection with them.

Apsley House has more personal than artistic interest. It was erected in the last quarter of the eighteenth century, and was for a period popularly known as No. 1 London, there being at the time no houses further west within the metropolis. Knightsbridge was formerly a mere hamlet outside London, as were Paddington, Islington, Newington, and many other villages now enclosed within the grasp of our giant octopus. The defects of Bath stone in the London atmosphere were probably less pronounced in the days when the "first gentleman of Europe" occupied the throne of England, for it was at that period that the Iron Duke purchased Apsley House, and employed Messrs. B. & P. Wyatt to face the front with Bath stone and to add the portico and the western wing. Further alterations were effected in the middle of the century by Philip Hardwick. But assuredly this façade does not call for admiring glances, and it will be better to pay some attention to the neighbouring monuments.

The triumphal arch now at the entrance to Constitution Hill was originally vis-à-vis to the screen at Hyde Park Corner; both were the work of Decimus Burton, the former originally supporting an equestrian group of the first Duke of Wellington, executed by Mathew C. Wyatt, who was also culpably responsible for the equestrian group of George III. in Cockspur Street. The Wellington Statue was the object of intense ridicule; but though it was felt desirable to remove it, the old Duke was so hurt at the idea, that the scheme was abandoned during his lifetime, and it was not until 1887 that it was transferred to Aldershot, the arch being then transplanted to its present position. It is understood that an ennobled financier has given a commission to Mr. Adrian Jones to execute a quadriga for the arch, so that eventually the last state of it is likely to be better than the first. For the arch itself it can only be said that there is a sad want of good proportion to the columns and of good contouring for the capitals. The Wellington Monument now erected is a work of art; and though, as elsewhere, the best portions are the subsidiary groups, yet Sir Edgar Boehm has given a fine presentment of the Duke seated on a well-modelled horse, whose quiet but by no means lifeless attitude is preferable to the prevailing uneasy treatment. The Park screen is very good, and a truly marvellous production for a young man, such as Burton was in 1825. Perfect it is not, but no adverse criticism shall be offered here respecting this chef d'œuvre.

Burlington House screen, Piccadilly, does not even admit of such criticism. Its good proportion in mass and in detail, the well-modelled columns, the studied use and distribution of ornament all proclaim the value of Messrs. Banks & Barry's work.

The adjoining arcade, the work of Samuel Ware (1818-9),* does not cause the foot to falter, but the recently-erected Piccadilly Arcade opposite, designed by Mr. Thrale Jell, is worthy of notice, though the entrance-span gives an uncomfortable effect.

A notable trio of architects are represented in this street —Wren, Chambers, Pennethorne. St. James's Church, the work of Wren (1680-4) has been underrated, for without being handsome or even beautiful or picturesque, it is a well-proportioned edifice with a pleasant distribution of brick and stone; but the western tower is not good. Sir William Chambers's work consists of the southern entrance to the Albany, but known prior to 1804 as Melbourne House; it is typical Chambers design. It is only when the third member of the triumvirate is considered that the representative work shown is entirely satisfactory, for the Museum of Practical Geology by Sir James Pennethorne is a good piece of work, such as this architect was wont to produce: objection may be justifiably taken in regard to the intermediate cornice; a façade should have but one. The building is expressive and has the merit of giving equal pleasure in inspecting within and without. Though the entrance front is at the rear in Jermyn Street, yet the Piccadilly façade is treated as the more important.

By Mr. A. Waterhouse's National Provincial Bank there need be no loitering, but our steps must be arrested in fron of two hotels and a restaurant. The Prince's Hall and Restaurant, the work of E. R. Robson, and erected mainly for the exhibition of art collections, is expressive and sufficiently dignified, showing a judicious admixture of plain and ornamented wall surfaces; the medallion treatment too i good. The Ritz Hotel is only noteworthy by reason of the arcade over the footway; good as this is, it would be bette for impost treatment, and the building generally is flat and stale, though, we will hope, not unprofitable.

But the Piccadilly Hotel is very fine, and proclaims Mr Norman Shaw as its author (we refer merely to the elevations). It is a design that calls for unstinted praise, a particularly pleasant feature being the Ionic screen to the overhead terrace. The proportions of the building are very satisfying. It is, however, regrettable that the completion of this hotel should necessitate the demolition of Denman House,* the work of Mr. Harold Woodington, a well designed stone block, which has not yet witnessed two lustres

Space failing us, the consideration of several buildings must be omitted; and after making passing approving reference to the characteristic block by Messrs. Ernest George & Peto, we must confine the closing portion of this article to three pieces of work, the first of these dating back nearly forty years, when it was erected for Henry Sotheran's firm by Messrs. Vaughan & George. It is the most original o all the frontages and has the merit of being Gothic withou being barbaric; it exhibits a curious lack of projection (fo the string courses are nearly flat), and an unusua lack of Gothic exuberance, which is very pleasing. The loggia to the third floor gives a welcome relief to the genera air of flatness, and the angle cable ornament is good. The effect also of the painted glass mural slabs against the Portland stone without framing of any sort is novel and attractive. Medallion portraits of Shakespeare and others provide some additional relief to the flat design.

The two buildings at the junction with St. James's Stree were erected contemporaneously, and have one other facto in common, namely, the use of Pentelic marble as a genera facing; but here the buildings part company, for whereas Messrs. Runtz & Ford have produced a work of architecture in the Norwich Union Buildings, the same cannot be said for the opposite block, which is an example of the neo English style run to seed. There are two satisfactory effect about Mr. John Belcher's building—the grain of the marble and the groups of statuary; after saying that, the wayfare would turn with a sigh of relief to the Norwich Union Buildings, though he (or she) must be of a curious disposition if he (or she) approves the jasper ground storey; this is and must remain incongruous. But the superstructure is very fine, the angle treatment is very vigorously managed and the carving and the bronze groups are admirable, though the lion's-head trusses over the main cornice are not pleasing The oval window-settings to the third floor form another good feature.

Other buildings that might have been desirably included in this article must be regretfully omitted; for we must extinguish our flickering lamp and bid our readers "Au revoir."

BUILT-UP COLUMNS UNDER LOAD.†

IN analytical discussions of column action the stress i usually assumed to vary uniformly from a minimum on one side of the cross-section to a maximum on the opposite side, and the whole cross-section of the column is considered to act as a unit. The longitudinal axis of the column i also considered to take a definite elastic curve under load In the derivation of most column formulas, it is assumed that the amount of deflection of the elastic curve from the original position of the axis is an important element in fixing the maximum stress in the column. Although these assumptions are generally used as the basis of column formulas, it may be well to consider whether conditions may not exist, in columns of ordinary form and dimensions, which will render doubtful the general applicability of some of ese assumptions and will dwarf the effect of others. At any te, it seems worth while to consider the effect of other nditions in a built-up member. It must be borne in mind at the built-up column is subject to imperfections of brication, and that some crookedness and eccentricity must ist. The component parts of the column may be relatively ender and flimsy. Whether there is integrity of cross-ction under load is a question. In the tests that were ade the amount of deflection from the original axis, for ads up to a point somewhat below incipient failure, was und to be slight (generally between 0.04 and 0.1 in.), much aller than necessary to account for the stresses observed in e columns.

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* This elevation has recently been raised with very good effect.

* See illustration in *The Architect*, April 15, 1904.

† Conclusions from a series of tests made by Arthur N. Talbot and Herbert F. Moore at the Engineering Experiment Station of the University of Illinois.

The action of short columns at failure may be expected to different from that of longer columns, although the stresses to incipient failure may be the same. Granting that the nditions of non-straightness are such that the distribution stress over the cross-section is the same for the two lengths columns, and that the deflection of the column is so slight not to affect materially the stresses developed, the longer lumn will be in more danger of immediate and sudden llapse after the yield point of the material in any fibre s been reached, and the total load carried before complete ilure will, in general, be less. This is because, in a ductile aterial, after the stress at one side of the column has passed e yield point, the total resistance of the section to com-ession will increase, while the resistance to cross bending ay not. Under the conditions named, the bending moment e to eccentricity will be the same until the yield point in me fibre is reached. After yielding begins, the greater flection in the longer column rapidly increases its relative centricity, and more rapid failure may be expected than ith the shorter column.

It will aid in the interpretation of the distri-tion of stress over the channel members of the columns to int out a few simple indications.

1. Any lack of agreement between the average load stress d the average of the stress given for the four centres of avity of channel flanges may be ascribed to errors of obser-tion.

2. If the stress at the centre of gravity of one channel is ove the average stress throughout the length of the column, d the corresponding stress for the other channel is milarly below the average stress, there must be an eccen-icity in the application of the load at the two ends. If the resses at the centre of gravity of one channel member form the diagram a straight line which crosses the line of erage stress, and that for the other channel crosses in the posite way, the eccentricity of the load application must oblique.

3. If the stress at the centre of gravity of a channel in arby points is greater first in one channel and then in the her, the change may be due to crookedness of the column roughout that part of the length.

4. If, in one channel or in one channel flange, the stress the centre of gravity remains constant and that of the treme fibre varies, the change may be due to local crooked-ss of this channel, and there will be a lateral bending this member.

5. If the front side of a channel has a higher stress than e back side, there must be bending action through its web, d *vice versa*.

6. Changing stresses in the diagonally opposite corners a channel may indicate twisting of the channel, and nother combination of stresses may indicate a twisting or lique distortion of the column as a whole.

All these indications were found in the tests.

7. To be in accord with the principles of column formulas the Rankine type, there should be from end of column middle a regular increase in the stress in one channel or in e flange of a channel and a corresponding decrease in the ress in the other. Verification by an agreement between distribution of stress and the theory would be important. his verification was not obtained.

Engineers have often expressed doubt as to whether the arts of a built-up column act as a unit, although column rmulas assume this unity of action. The tests throw me light on the question of the integrity of cross-section nder load. The individual channel, of course, acts as a nit to resist bending action, though there are indications of visting. The integrity of the whole section with reference a plane parallel to the lacing seems probable, except as visting action exists. With reference to a plane through e axis perpendicular to the plane of the lacing, this unity action is not so certain. The tests on the distribution of mpressive stress and likewise the crossbending tests of the lumns indicated that these built-up columns did not in all cases act as a unit, but rather as two members not fully restrained by the lacing. The stresses in two channels as points in the same cross-section do not give the regularity of variation which would exist if the column bent as a unit. The elastic curve assumed by a steel column tested under cross-bending load differs from the computed elastic curve, though that for a wrought-iron column gives little difference. In the case of the posts of a bridge that was tested, however, there is much closer agreement and a seemingly closer approach to unity of action.

The effect of crookedness or other iregularities of a constituent member of a built-up column may be realised if a rough analysis of the case be made. Consider a part of one of the channels forming a column, taking the length between the connections of two adjacent lattice bars. This member is under compression. Owing to non-straightness or to the non-homogeneity of the material, the load on this short piece is not evenly distributed over the section; that is, it is not centrally loaded, but may be considered to have an eccentricity with respect to the gravity axis. Call this eccentricity e. Neglect any deflection of the piece under consideration due to the load. Call the compression load coming on this piece P; A its area of cross-section; I its moment of inertia about the gravity axis, and r the corresponding radius of gyration; and c the distance from the axis to the remotest fibre. Then the bending moment due to the eccentricity is Pe. The maximum stress will be

$$f=\frac{P}{A}+Pe\,\frac{c}{I}=\frac{P}{A}\left(1+\frac{ec}{r^2}\right).$$

The excess of the stress in the extreme fibre of the piece over the average stress, produced by the eccentricity e is then $\frac{P}{A}\frac{ec}{r^2}$, and hence the term, $\frac{ec}{r^2}$, gives the proportionate excess of stress in the extreme fibre. This value is applicable to the channel, or to one flange of the channel, or it may be applied to the column as a whole by using the properties of the whole section. In the single channel under consideration, c is relatively large and r is relatively small, and the excess of maximum stress for a given eccentricity e may be expected to be relatively large. It will be seen that for an excess of 50 per cent. in the extreme fibre of a channel of the steel column tested, e, by this formula, would be 0.045 in., and, in the wrought-iron columns, 0.057 in. A slight variation from straightness in a channel will account for considerable increase of stress.

The tests showed that the compressive stress was unevenly distributed over the cross-section of the columns tested, and also that there was great variation in this distribution at various sections along the length of the column. In a number of sections the excess of stress was from 40 to 50 per cent. In one test of the steel column tested an excess of 67 per cent. was found, and in the bridge an excess of 73 per cent. Possibly these values were unusual or the observations were erratic, but the indications of a fibre stress of from 40 to 50 per cent. in excess of the average stress were not uncommon.

It may be that among the causes to which the high fibre stress may be attributed are (a) non-straightness of the column as a whole, (b) non-straightness of the component channels, or eccentricity in the delivery of stress to them by the lacing, and (c) unknown eccentricity in the application of the load. It would be of interest to know how much of the increase of stress may be due to any one of these conditions. Generally only a small amount may be said to be due to non-straightness of the column as a whole. In but few cases is it found to be more than, say, 5 per cent.; in four places it seemed that the excess attributable to this may be estimated to be between 20 and 25 per cent. The effect of non-straightness of the individual channels seems to be greater. At several points the excess of stress attributable to this cause appears to be from 30 to 50 per cent. As already noted, a kink in the channels of 0.045 in. would give, by the analysis made, an eccentricity sufficient for a 50 per cent. increase in stress. Not all of this crookedness need be between adjacent rivet points, as the stress may not become normal for some distance on either side. The effect of the third condition, eccentricity of application of the load, will vary with the construction. In the steel column tested the effect of undetermined eccentricity of application of load appears to be not nearly as great as the effect of non-straightness of the component channels.

In the wrought-iron columns, which were much stockier, the lack of straightness in individual channels has less effect, seemingly less than 15 per cent., and much the larger part of the high fibre stresses appears to be due to general column eccentricity or to eccentricity of loading.

The results for the posts of the bridge tested are of interest in this respect. It is evident that the effect of non-straightness of channels was not large, and also that the effect of non-straightness in the column as a whole was relatively small. There was, however, an evident bending in the direction of the web of the channels. For example, in one post the back side of the channels has the maximum stress at the top and the front side at the bottom. The bending moment producing this may be due to obliquity of end pressures or to a bending by the connecting floor-beam and top chord. A twisting action is also apparent. Other posts gave quite similar results.

In the tests of the bridge the effect of the cover-plate seems striking. The upper chord, composed of two built-up channels with one cover-plate, gave an excess fibre stress of 20 per cent. at the worst section, while the post, composed of two channels laced on both sides, gave a maximum of 73 per cent. The high value in the posts may be due to other causes, but it seems reasonable to expect that the cover-plate will act to reduce the irregularities in fabrication. Engineers have stated that columns having a cover-plate are fitted into their places during erection with less labour than is required for columns with lacing on both sides. Tests on the stress distribution of such columns would be valuable as affording a basis on definite comparison.

The connections of the ends of posts evidently exerted a very noticeable effect on the stress distribution. In one of the posts tested the stress was greatest at one corner of the post at the top and at the diagonally opposite corner at the bottom. The posts were rivetted to the top chord, and were connected with the lower chords by pins. The floor-beams were rivetted to the sides of the posts, and this connection affects the stress distribution. Readings of deformations taken on the floor-beams and posts show that the loaded beam was partly restrained at the ends by the post, though this restraint introduced a bending moment at the end of the post only about one-quarter as great as at the centre, and that there was an appreciable bending in the post.

If the load carried by one channel of a column was the same throughout its length, no stress would be carried by the lattice bars. Such stress is developed whenever there is a change in the relative amount of loads carried by the two channels. If, at some sections there is an equal division of load between the two channels, and if at some other section the division of load is unequal, it is evident that the lattice bars must be called into action to transmit this stress, and that transverse shear exists in the interval. In general, the conditions producing this will be complex, rendering analysis unsatisfactory, except in so far as the shear may be due to a known eccentricity of loading.

It was evident from the tests that the relative stress in the two channel members varies considerably from end to end, and that the stress in the lattice bars also varies. It seems probable that the transverse shear developed may be traced largely to irregularities in outline, or at least that these irregularities may be expected to cover up other causes of stress in the lacing of centrally-loaded columns, if we include in such irregularities all unknown eccentricity. The futility of attempting to determine analytically the stresses in column lacing, using as a basis either a bending moment curve which varies regularly from end to middle or an assumed deflection curve, is apparent from a study of the variation of stress in the columns of the tests and in that of the lattice bars.

The amount of transverse shear necessary to produce the maximum observed lattice-bar stress is of interest, though, of course, it cannot be taken to be conclusive. The measurements were generally made at working loads. So far as observations were made on columns tested to failure, the distribution of stress remained much the same up to incipient failure.

In the discussion of stress developed in column lacing, the stress considered was the average over the bar. As usually attached, there is considerable flexure in the bar, and the ability of the bar to carry this eccentric load should be considered. The bars are most likely to fail in compression, since they act as long columns eccentrically loaded. This compressive strength may be greatly diminished by the bending which they frequently receive in transportation and erection.

The tests of individual lattice bars showed that the maximum fibre stress may be several times the average stress. It was also seen that even in a short lacing bar the maximum load carried is only about one-half the yield point of the material. The necessity of using very low working loads on lattice bars appears to be important. It was noted that at low stresses there is similarity of distribution of stress in the slender bars and in the thicker bars, but the slender bar fail at smaller computed fibre stress.

The results of tests to destruction of individual lattice bars (flats) are fairly well represented by the formula:

$$\frac{P}{A} = 21{,}400 - 45\frac{l}{r}$$

where P = load at failure in pounds, A = area of cross-section in square inches, l is the distance in inches from centre to centre of rivet holes, and r is the radius of gyration, in inches, of the cross-section of the lattice bar. The results of the tests were adjusted so that this formula applies to material having a yield point of 40,000 lb. per square inch. These results may be considered to be applicable to "under" lattice bars. For "over" bars it seems probable that the average stress at failure would be considerably less. If $\frac{l}{r}$ is 0 in the above formula, that is, if we have a very short lattice bar, the average stress over the bar at failure would be 21,400 lb. per square inch. If the extreme fibre stress in this short bar is 40,000 lb. per square inch, the yield point of the material, the equivalent eccentricity of loading (e) which would produce this may be found from the equation

$$40{,}000 = 21{,}000\ (1 + \frac{e \times \frac{1}{2}t}{r^2}),$$

where t is the thickness of the bar. The resulting e is found to be very nearly $\frac{t}{7}$. We may then regard the lattice bar to have been loaded with an initial eccentricity equivalent to $\frac{1}{7}$ the thickness of the bars.

The large variation in stress over a cross-section of the column and the marked changes in stress from section to section along the column are evidently due to local crookedness, local eccentricity, lack of rigidity of lacing, and other variations which may be independent of the general flexural curve usually assumed in deriving the usual formulas for column strength. It would seem that the form of section (including in this term the relation of the thickness of the metal to the section as a whole) has a bearing on the strength. The thinner and flimsier component angles and channels are more liable to receive kinks, bends, and distortions before and during punching and riveting in the shop and in the later transportation and erection than are the stockier sections. The value $\frac{ec}{r^2}$ of the formula given above may be expected to vary with the form of section used. Besides, some sections are better fitted to withstand lateral twisting or diagonal distortions and to preserve the integrity of the cross-section than others. The wrinkling tendency in plates and thin parts under compression, heretofore referred to, is another element affecting the strength of columns. It may be expected, then, that differences in section, in type of component parts, in method of relating and tying the parts together, and for the same type of section differences in relation of thickness of parts to extreme dimensions of sections, will have an important influence upon the compressive strength of columns. It follows, therefore, to give the best results, that the section of the column, and its web construction, should be chosen so that (1) the shop processes shall leave the component parts of the column in the best condition (giving the minimum of bending, buckling, twisting, and interior eccentricity), and (2) the section will be adapted to resist local lateral bending and twisting action. Evidently, different forms of section may be expected to give considerable difference in strength. This difference has been recognised heretofore in formulas which have been proposed and used for certain types of columns.

A study of the tests does not show any relation between the stresses actually observed and the stresses computed by column formulas. The high stresses do not come where the curve of flexure used as the basis of formulas of the Rankine type would place them, and the position and amount of the maximum stresses are very irregular. Although there was little range in the slenderness ratio $(\frac{l}{r})$ of the columns tested, no effect was noticeable for which the value of $\frac{l}{r}$ would seem to have much influence. This view seems to be in disagreement with theoretical considerations. The lengths for which Euler's formula may be expected to govern column strength are much greater than the length tested, and probably are higher than is generally assumed in engineering literature. Within the critical length at which Euler's formula governs, the general flexure of the column as a whole under load has less influence upon the strength of the column than is ordinarily assigned to it, and therefore the influence of $\frac{l}{r}$ is not as great as is represented in the usual column formula. Of course, the longer the column the more the amount and influence of its defects may be. The recent tests of columns at the Watertown Arsenal indicate that, within the range of lengths tested $\frac{l}{r}$ (25 to 175), the reduction in strength at elastic limit with increased length is relatively small, perhaps not much more than may be due to increased variation from straightness and homogeneity. In this connection it should be noted that the column formulas in common use give altogether too high strengths for short columns, if the elastic limit is to govern. So far as ultimate strength is concerned, tests show the strength of short columns to be considerably above their elastic limit, but beyond a limit of, say 35, for $\frac{l}{r}$, there is much less difference between elastic limit strength and ultimate strength.

That the column formulas in common use have limitations has been well understood, but the effect which the conditions of the component parts of a compression member exert on the distribution of stress over the section has not been appreciated, nor has that of eccentricity of connection of latticing, and of the possible non-integrity of section. It would seem quite probable that, for columns of the same length and containing the same amount of metal, one which is of stocky form and in which the metal is distributed so as to resist local flexural and torsional action will be much stronger and more satisfactory than a column of more flimsy form, which has its metal spread in thinner sections, even though the slenderness ratio, $\frac{l}{r}$, of the former may be considerably more than that of the latter. It seems reasonable to expect that a form of section which resists lateral bending, torsional and collapsing stresses, will be much more satisfactory than a more flimsy type of column, for the lengths most common in ordinary bridge construction. If these statements are trustworthy they express an important principle. For the longer lengths the slenderness ratio must exert a stronger influence. For the strength of the component angle, channel, or other structural shape used in a built-up compression piece, many engineers have been satisfied with the provision that the slenderness ratio of the component member shall be less for the length between the points of attachment of lacing than the slenderness ratio for the column as a whole, and have given little attention to the possible non-integrity of the section or to the probable effect of imperfections of manufacture. Fortunately, the large influence of the slenderness ratio in column formulas has given sections with which failures have not occurred. Whether a column formula should include a factor depending on the form of the section and the relative thickness of the metal, or whether the allowable stresses for any form of column should be based on experimental data for the section used, will depend on future developments.

The tests that were made have shown the practicability and also the importance of making tests on the distribution of stress over built-up columns within the elastic limit, both under laboratory conditions and in field service. It is evident that much experimental information is needed on the stresses which are developed in compression members built under ordinary conditions of fabrication and erection before a satisfactory column formula may be established. Tests giving the needed information involve extreme care, and they are expensive, with regard to time and labour, whether done in the field or in the laboratory. A full study of the action of the compressive piece under loads which do not stress the material beyond the elastic limit should be included. The expenditure involved is far beyond that of tests to destruction alone. An investigation should be accompanied by a careful study and analysis of the tests and results. A programme of tests need not involve a large number of test pieces; but, to be really useful for the purpose in view, the time devoted to the test and the study of each piece must be ample, and the total cost of even a fairly comprehensive investigation will be large. It may be expected, however, that the value of the results would repay many times the cost of the work, and the expense would be justified by the added security and, perhaps, by the economy of metal which might result from the investigation.

(*To be concluded.*)

RURAL HOUSING.*

IT may in one sense be somewhat discouraging to those who have to administer our system of local government to feel that there is no finality about their work. As soon as one set of conditions which calls for attention is disposed of another appears to crop up, and possibly at this moment there is no more important work ready to hand and almost universally demanding early attention than the question of the better housing of the working classes. If it is not universally the case, it certainly prevails in many parts of rural England that the cottages of the labouring classes are by no means sufficient in numbers, and frequently the rooms in those which exist are inadequate for the proper and decent accommodation of a growing family. The importance of remedying these evils where they exist cannot, I think, be over-stated. Better and more efficient housing would materially assist in the solution of many of the social problems which affect our rural population. Take, first, the question of drink. Many a poor hard-working farm labourer is driven to the public-house where money is spent which is badly needed at home because he cannot find a place in his own house where he can take a few hours' rest. Then, again, take the question of consumption which we are all trying to tackle. In how many cases is bad housing—overcrowded sleeping rooms badly ventilated—the cause of the first appearance of this dread disease in a family, and when it has once found a victim what a danger there is in respect of other members of the family who must of necessity occupy the same rooms reeking with the infection. Then, again, there is the no less important question of moral tone which must suffer where the sexes are occupying houses with insufficient accommodation for proper and decent habitation. There are other evils arising from such a condition of affairs, but possibly I have instanced enough to prove how important it is to do what can be done to remedy a condition which is full of danger, and the responsibility of full enquiry now rests upon District Councils who, coupled with that responsibility, are now armed with full powers to cope at least to a large extent with this important social problem. Unfortunately in many parts of rural England the customs relating to the tenancy of cottages militate against the want being supplied by private enterprise. In the part in which I have most experience it is the practice of tenant farmers to let the cottages occupied with their farms, which may or may not be sufficient for their workmen, at a rent of 1*s.* or 1*s.* 6*d.* a week; in some cases the workman occupies free of rent. At such a rent as this it is quite impossible for private enterprise to compete, as unfortunately these rents approximately fix the price of cottages in the neighbourhood. The farmers are not to be blamed for this. I have spoken to more than one on this point and asked why proper remunerative rents cannot be charged, and the reply always is that in that case wages must be raised all round, and the economic conditions of agriculture to-day render it difficult to make both ends meet in any case, and if the wages bill were materially increased it would be impossible. Where cottage room, therefore, is insufficient, and there is no chance for private enterprise, there still remains the moral obligation of the landowner, but here, again, economic questions have to be considered, and it often happens that landowners with their reduced rents and heavier taxes are not able to spend the money necessary; others may be unwilling where such expenditure is a bad investment; some may from motives of philanthropy supply the want, but in the majority of cases it having become the duty of the local authority where conditions exist which call for a remedy to supply the necessary housing, it must be to the local authority that the country must look to act.

I fear there is some hesitancy on the part of local authorities to put in force the powers they now possess. Since the passing of the 1909 Act only nine out of a total of nearly 700 Rural District Councils have applied for loans for building. A housing scheme need not as a general rule entail much loss on ratepayers, if any, and in some cases it has been found with proper and careful management it has been made to pay its way, and where houses are sorely needed and there is a probability of making both ends meet, there does not appear to be any financial reason why such schemes should not be carried out. There is, however, another reason which doubtless affects the judgment of many members of our local authorities, and that is the possibly unfair competition with private enterprise—unfair because money can be borrowed on much better terms both as to interest and period of repayment by local authorities than by private individuals, but where both the general welfare and health of the local community is in danger, it is submitted that the consideration of private interests should not prevail.

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* **A Paper by Mr. G. F. Slade, clerk to the Wallingford and Crowmarsh Rural District Councils, read at a conference of Rural District Councils of England and Wales at the Guildhall, London (organised by the Rural District Councils Association).**

The proper carrying out of their duties by District Councils is much hampered where housing accommodation is insufficient. How often have members here present received reports from their sanitary inspectors of overcrowded houses and been practically unable to insist upon the nuisance being immediately abated by reason of the fact that there is no other house available for the overcrowded family. Take the case of a labourer living in a small cottage with only two bedrooms, and plenty such exist; there is himself and his wife, and possibly five or six children, ranging from 14 to 2 years of age, to be accommodated with sleeping room. The Inspector reports the case as one of overcrowding—there is no house in the village or near to the man's work available; what is to be done? Is he to be turned out in the road? or is the unhealthy condition to be allowed to continue? Where conditions exist such as I have attempted to describe, and I venture to think that in a greater or lesser degree they exist in most parts of rural England, the Legislature has given ample powers to Rural District Councils to provide a remedy, and where the evil exists and power is given to remedy it, surely it follows as a necessary consequence that an imperative duty arises to exercise such power and mitigate such evils. District Councils are on their trial, opportunities are given to them, and these opportunities imply obligations, and I venture to predict that the future existence of our Rural District Councils as a separate and independent local authority to a very large extent depends upon how we exercise those powers. I hope it may be a very long time before the present District Councils will lose any of the powers they now possess; in fact, I should like to see them extended, but depend upon it this will never be done if the duties already imposed upon us by the Legislature are not satisfactorily performed, and to my mind the most important at this moment is the question of housing.

Now what powers has the Legislature given us?

Under the Housing and Town Planning Act we are directed to make, first of all, a careful inspection of our several areas, and to procure a record of the condition of the houses under a certain rental in every village. The provisions relating to this inspection are, I venture to suggest, defective in some important and some minor particulars. In the first place, as a minor detail, it would have been much more convenient if the standard had been fixed on rateable value, with a provision that the assistant overseers should make a return from time to time of the cottages and dwelling-houses in their respective parishes under the standard. It is not always easy to find out the exact rents, but this is not a serious obstacle in the way of carrying out the intentions of the Act.

Another point of more importance is that the records contain no general or specific information as to the sufficiency in number of the houses in a village or district; it does not in itself give the information that would be most useful as to whether more houses are required, nor any definite statistics that would lead to such a conclusion. Councils may, however, prosecute their enquiries quite easily for themselves.

Another matter that I submit might have been differently dealt with is the provision in Section 15 that landlords shall during the tenancy of houses where the contract for letting is made *after* the passing of the Act keep the houses in all respects reasonably fit for human habitation. It would have been a great help to District Councils if some provision could have been made that after a certain period, say six months from the passing of the Act, all houses coming within Section 14 should be put and kept by the landlord during occupation in all respects fit for human habitation. It is difficult to see why an old tenant is to lose the benefit of the section. Then, again, it appears to me that by Section 15 the power of the local authority to do repairs in default of their being done after notice by the landlord and recover the amount as therein provided, only applies to tenancies coming under Section 14. It would have been helpful if this power had extended to all houses and not been limited to new tenants. It would also have been useful to local authorities if some provision had been made whereby they might under statutory authority have specified to a landlord the maximum number of persons certain houses could properly accommodate, so that the landlord might know definitely when he was committing an offence by permitting overcrowding, but notwithstanding these suggested defects upon which there may be great diversity of opinion, the Act now puts it easily within the power of local authorities not only to effect very great improvement in the existing dwellings of the working classes by enforcing good sanitary conditions, but makes the procedure for the building of new ones much more simple and expeditious than it has been under the older Acts.

District Councils can now purchase land and build without going to some other local authority for sanction. If difficulties arise as to the price of land required, there is a simple, cheap, and expeditious method of settling the question by the arbitration of the Local Government Board. If money has to be borrowed, which in almost every instance will, I presume, be the case, it can be obtained for long terms at low rates of interest; in fact every reasonable business facility is provided for carrying out the work, and provision is also made in cases where the necessity for building arises only in one or more contributory places in the area of a District Council for making, with the sanction of the Local Government Board, the cost of such building and the loss, if any, a charge on that area alone.

Where such simple methods of procedure are provided, it is difficult to excuse a local authority where necessity exists for making use of their powers, but in cases where local authorities do not do so the Act further provides that four inhabitant householders, not of the particular parish but of the district, or the Parish Council or the County Council, may set the machinery in motion by applying to the Rural District Council to carry out their powers under the Act, and in the event of continued neglect on the part of the Rural District Council to do so, application can then be made to the Local Government Board, who will enquire into the complaint, and if it is found to be well founded may require the District Council to carry out the required work or transfer their powers to the County Council, with the consent of such Council.

Another important provision contained in the Act is the power given for the first time to the local authority to make and enforce a closing order where a house is proved to their satisfaction to be unfit for human habitation. Hitherto this power could only be exercised by a Court of Summary Jurisdiction, and this new provision appears to me to be only another proof that the Legislature is desirous of increasing the powers and with it the responsibilities of Rural District Councils, and I will conclude my paper by expressing a strong recommendation to the Rural District Councils to see to it that these new and important additions to their powers shall in the future be carried out in such a way as to justify the Legislature in still further making use of these authorities in the future as occasion may require.

HIGH-PRESSURE WATER SUPPLY IN NEW YORK.

IN New York City the authorities show much satisfaction with the working of the high-pressure system for fire protection, though its installation there has barely passed from the experimental stage. No attempt had been made to install a mechanical high pressure, worked from a central station for fire-fighting purposes exclusively, prior to that of Philadelphia in 1904. At that time the necessity of maintaining continuous steam pressures in order to drive the pumps for the service retarded the final adoption of the high-pressure system until the plan of utilising a gas engine in place of the steam engine was proposed. The New York system, however, has made a new departure in that the motive power is that of electricity.

The area protected by the high-pressure system in the boroughs of Manhattan and Brooklyn cover the high value, wholesale, commercial, and manufacturing districts, waterfront property, and part of the congested tenement district in lower Manhattan. Some 21,000 acres are included in this area, with some eighty miles of main and 1,900 fire hydrants of special design. Two electrically-driven pumping stations, with a rated capacity of 3,000 gallons per minute at a discharge pressure of 300 lbs. per square inch, furnish service on every alarm within the high-pressure zone.

The main advantage for this system over the use of portable fire engines lies in the power it affords of attacking a fire at its very outset, and of bringing to bear at once a constant high pressure. It is, moreover, far more economical. The total annual cost of maintenance of the Philadelphia pumping station, including wages and gas, is less than the average cost of maintenance for one fire engine per year. Especially in the case of high values in a congested area, such as the dry goods district of New York, the installation of the high-pressure system has been attended with marked success, and its extension throughout the whole area of Manhattan is already under consideration.

Comparing the costs of running gas engines and electric-driven engines, the chief engineer of the New York Department estimates the cost for current alone for pumping 1,000 gallons of water by electricity to be 4*d*., while the cost for pumping the same amount of water by gas-driven pumps would be about 1*d*. for gas only. The total cost of maintenance, including gas, wages, &c., in Philadelphia is stated to be 2½*d*. per 1,000 gallons of water pumped. Water is delivered from the electric pumps at a much higher rate than from the gas pumps. The outflow of the electric pumps, though rated at 3,000 gallons, averaged in the great fire of January 1910 nearly 5,000 gallons per minute, while the gas-driven pumps of Coney Island showed at the fire of July 1907 an average effluent of about 1,450 gallons.

THE GEOLOGY OF BELFAST AND ITS PUBLIC HEALTH ASPECT.*

To the engineer, and particularly to the engineer engaged in the branches of engineering connected with water supply and drainage, the geological characteristics of any neighbourhood are of interest chiefly from three standpoints: the stability or otherwise of the strata near the surface; the presence of water-bearing strata, and the depth at which such may be found; and the relationship of the condition of the soil to disease.

Belfast is almost entirely built on alluvial deposit, so far as the lower lying portions of the town are concerned, this material being replaced by red clay in the higher districts. In certain parts a considerable area is "made ground."

Of the latter two it is unnecessary to say anything from a building standpoint, as their characteristics are well known. The alluvial deposit consists of a material which looks like a blue clay, and on first being exposed to the air is of an extremely solid appearance. If, however, it is exposed to wet it becomes a semi-fluid, oily material, which will find its way back to any trench from which it may have been taken if left near the edge. A case is on record where the excavated material was left on the edge of the trench, and after a night's rain the trench was again filled.

For excavating in this material close timbering is essential to safety, and although local contractors often try to dispense with much of the timber necessary to completely sheet the sides of the trench, the risk is a large one, and the writer has seen several cases of accident owing to this.

The usual method of supporting large buildings is by piling the foundations, the method of carrying down concrete pillars or other similar construction to the underlying solid stratum being much too costly owing to the depth at which the latter is usually found. As a rule the piles are of larch, and the specification as to driving is that the pile shall be driven until a weight of, say, one ton falling ten times from a height of 5 feet shall not cause the pile to sink more than a ¼ inch.

Over the top of the piles are fixed whole timbers, and between and over these is placed concrete, so that in effect the buildings are carried on a raft. This method of construction has proved perfectly satisfactory, and is much less costly than taking down solid foundations to the hard bed would be.

Where no great weight has to be carried, and there is a fairly hard crust on the surface, it has been found that it is quite safe to build on top of this crust, and not pile, and some of the smaller buildings are built thus.

The second consideration is that of the occurrence of water-bearing strata, and in this connection a few remarks as to the geological characteristics may be interesting.

Belfast itself lies in a saucer-shaped depression, bounded on the north-west by the Antrim Mountains, and on the south and south-east by the Holywood and Castlereagh Hills, the latter two separated by the Dundonald Valley. The Antrim Mountains are the eastern edge of the tertiary basalts of the North of Ireland. Beneath the basalts lies the chalk, the two being commonly separated by an irregular bed of flint gravel. The chalk here appears much in advance to the north-west of its position in England—one of the most curious facts in the geological story of the British Isles.

As before remarked, from the basaltic escarpment to the hills of Down, the superficial layer is composed of estuarine clay. The limits of the estuarine clay in Belfast itself are a cliff of new red sandstone, which may be seen near the Northern Counties Railway. The Newtownards Roard marks the boundary of the estuarine clay on the County Down side.

The boring at East Bridge (Corporation Electric Station) gave the following result:—

		ft.	in.
Rough formation		2	0
Hard and soft concrete		4	0
Estuarine clay		16	0
Heavy close gravel.	? Post glacial	14	0
Hard sand and gravel	Glacial	4	0
Heavy clay		3	0
Fine close gravel, shell, and stone		8	0
Red clay with stone		6	0
Hard gritty sandstone with blue stone under (Triassic sandstone with Basalt dyke)	Triassic sandstones	7	0
Red sandstone		85	0
Hard dyke rock (Basalt dyke)		3	0
Fine red sandstone		114	0
,, ,, with clay marl		19	0
Red sandstone		160	0
Tough clay and sand.	Lower marls	3	6
Red clay and hard stiff marls		39	6
Hard red sandstone with layers of magnesia	? Permean	18	0
,, ,, with clay marl		30	0
,, ,, showing more clay		18	0
		554	0

The bore was 10 inches in diameter to a depth of 68 feet, and 8 inches diameter thence to the bottom.

At 35 feet depth the yield was 2,200 gallons; at 448½ feet it was 2,700 gallons; and at bottom 6,500 gallons, with an air pressure of 112 lbs. per square inch.

When excavating for the foundations of the Albert Bridge the strata met with were as follows:—

	ft.	in.
River mud with coarse sand	10	0
Lower estuarine clay	14	0
Gravelly bed	1	0
New red sandstone	—	
	25	0

The third record is taken from the excavation made for the Alexandra Dock:—

	ft.	in.
Surface clays	6	6
Yellow sand	2	0
Upper estuarine clay	6	0
Lower estuarine clay	6	0
Grey sand	2	0
Peat	1	6
Grey sand	2	0
Red sand	4	0
Re-assorted boulder clay (base not reached)	15	0
	45	0

As we get away from the low-lying parts of the city we find that the boulder clay is the usual surface stratum, overlying sandstone.

The geological characteristics of the surrounding country are varied.

The supply of water for Belfast and most of the surrounding towns is derived from streams draining the high lands round about. To ensure the purity of its supply, Belfast has purchased its whole catchment area, but the smaller towns have not taken this precaution, and in some cases the freedom of the source from pollution is not above suspicion. Sand-filtration is usual, and serious epidemics caused by impure water are rare.

In many of the smaller towns, and on most farms, the supply of water is obtained from surface-wells, and it is unnecessary to say how unsatisfactory this source is. Many of the medical officers have frequent analyses made, and attention drawn to the purity or otherwise of the water; but in no community, however small, should such a source of supply be used. The question of expense is too often taken into consideration, more particularly by Rural District Councils, the members of which are usually satisfied by having a well "cleaned out" when the water derived therefrom is shown to be polluted.

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* Abstract of a paper read before the Congress of the Royal Sanitary Institute at Belfast by Mr. J. Stilwell Munce, B.E., A.M.Inst.C.E.

Of course, it must be admitted that for many small authorities, with low rateable value, to do away with all surface-wells and to obtain a supply from an unimpeachable source, would lay a very heavy burden indeed on their shoulders, but to me it seems that here we have a strong argument in favour of the nationalisation of water supply.

From surface-wells it is an easy transition to speak of the relation of soil to disease. It is stated that at a depth of some feet bacteria cannot exist in the soil, and that, therefore, it is only from the surface-layers that disease can be propagated. On the other hand, some distinguished scientists have adduced that active putrefaction can take place in the deeper layers, and if the surface remains permeable, the products of this putrefaction can make their way to the surface. On this point it may be noticed that in any place where considerable fluctuations of sub-soil water occur there this fermentation is most active. Moisture and a moist condition of the medium, as opposed to absolute dryness or wetness, is the most favourable condition for this fermentation to take place. This condition is produced when, after a dry spell, a sudden rise and then a fall takes place in the level of the sub-soil water, leaving the stratum passed through in this moist state. Certain observers have stated that then is the time that certain diseases are most common.

Four diseases in the main are stated to have a close relationship with the soil: cholera, phthisis, diphtheria, and typhoid.

The first is not common about Belfast, and it is only necessary to say that where we have an impermeable soil, or a constant level of the sub-soil water, there cholera is rare.

But if cholera is rare, the same cannot be said of phthisis, for this is the cause of more deaths, not alone in Belfast, but in Ireland, than any other disease.

It is not usual in Belfast to require the site for a dwelling to be covered with an impermeable material, except where, in the opinion of the surveyor or medical officer of health, such covering is necessary; but it is always insisted on in the case of tilled ground. Now, the soil of Belfast is of a nature which makes it very retentive of moisture, and this moisture is certain to be drawn up through the layer of brick rubbish or ashes, which is the usual covering, into the living-rooms. Any products of the fermentation previously mentioned accompany it, and the result can be understood.

In addition, however, many houses in Belfast have been built on made ground, the filling used being refuse. Now, it is sometimes stated that all this material is entirely free from anything at all objectionable after three years. It may be, but it is open to question whether such be the case so far as regards the surface layers at least. It is a questionable policy on the part of a large sanitary authority to permit houses to be built, without an impervious covering to the soil, on top of what is to all intents and purposes a refuse head.

The relation of the soil to this disease in the rural districts is fairly clear. About the usual farm-house there is usually no means of draining even rain-water away. Slops of all sorts are thrown from the doorway, whilst in many of the houses the floors are of earth, and any liquid which falls on it slowly evaporates, with the result that the inmates are breathing an atmosphere more or less saturated with moisture and microbes.

It seems, then, that no great reduction of the number of cases of phthisis can be expected so long as the soil is permitted to empty its moisture into the dwellings, although a slight expenditure (at first) might have prevented much suffering.

The occurrence of diphtheria is stated to be due to dampness of foundations, and again this emphasises the necessity of making the whole site below a house impermeable to moisture.

And, lastly, typhoid authorities greatly differ as to the relationship between the soil and the occurrence of cases of typhoid.

The conclusion one is forced to is that there is a direct relationship between soil and disease, depending on—(1) The level of the sub-soil water; (2) its fluctuations or the reverse; (3) the comparative retentiveness of the soil; (4) the state of cleanliness of the surface, *i.e.* its freedom from masses of filth left to decay.

The effects of all four can be overcome; it is for those who know how to explain to their more ignorant or careless brethren.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Metal Lamp Patents.

Sir,—Our attention has been called to a statement under the above heading appearing in your journal of the 18th inst., addressed to you by the Osram Lamp Works, Ltd., to which is appended a notice of an order made in reference to an action brought by that company against the British Tungsten Lamp Company, Ltd.

As one of the various manufacturers referred to in that letter against whom litigation has been commenced, we desire to call your attention to the fact that the order referred to was made with the consent of the defendants, who took no steps to defend the action.

The business of the British Tungsten Lamp Company, Ltd., was in the hands of a Receiver for the Debenture holders, who did not feel justified in contesting the proceedings. The point is material, as your correspondent's letter might convey the impression that the order was the outcome of an investigation by the Court.

We may add that the proceedings instituted against us are being defended, and we are content to await the decision of the Court.—Yours faithfully,

The "Z" Electric Lamp Manufacturing Co., Ltd.,
Kilburn, Brown & Co.,
Managers.

New Broad Street, August 26.

Public Lavatories.

Sir,—It is nearly a year since I last wrote to you on this subject, and I am sorry to say it calls for attention as much as ever. In October of last year I wrote to call the attention of your readers to the fact that the public lavatories in Trafalgar Square were not accessible before 9 o'clock A.M. I ventured to describe this as little better than a public scandal. My letter resulted in several communications thanking me for what I had written, and expressing a hope that I would press the matter on the attention of the public authorities until the public are given access to the lavatory accommodation which is provided out of the public purse. One of the letters received was from the Chairman of the Public Health Committee of the City of Westminster, who, referring to my letter, wrote: "I should like to inform you that the matters dealt with therein have been for some time past the subject of discussion between the Public Health and the Works Committee." That was more than ten months ago. Matters are evidently not rushed in the Westminster City Council. I hope you will be good enough to publish this letter; it may help the discussion between these two important committees, and I can assure you from my experience of this morning large numbers will thank you if the result should be an earlier opening of the public lavatories.—I am, &c.,

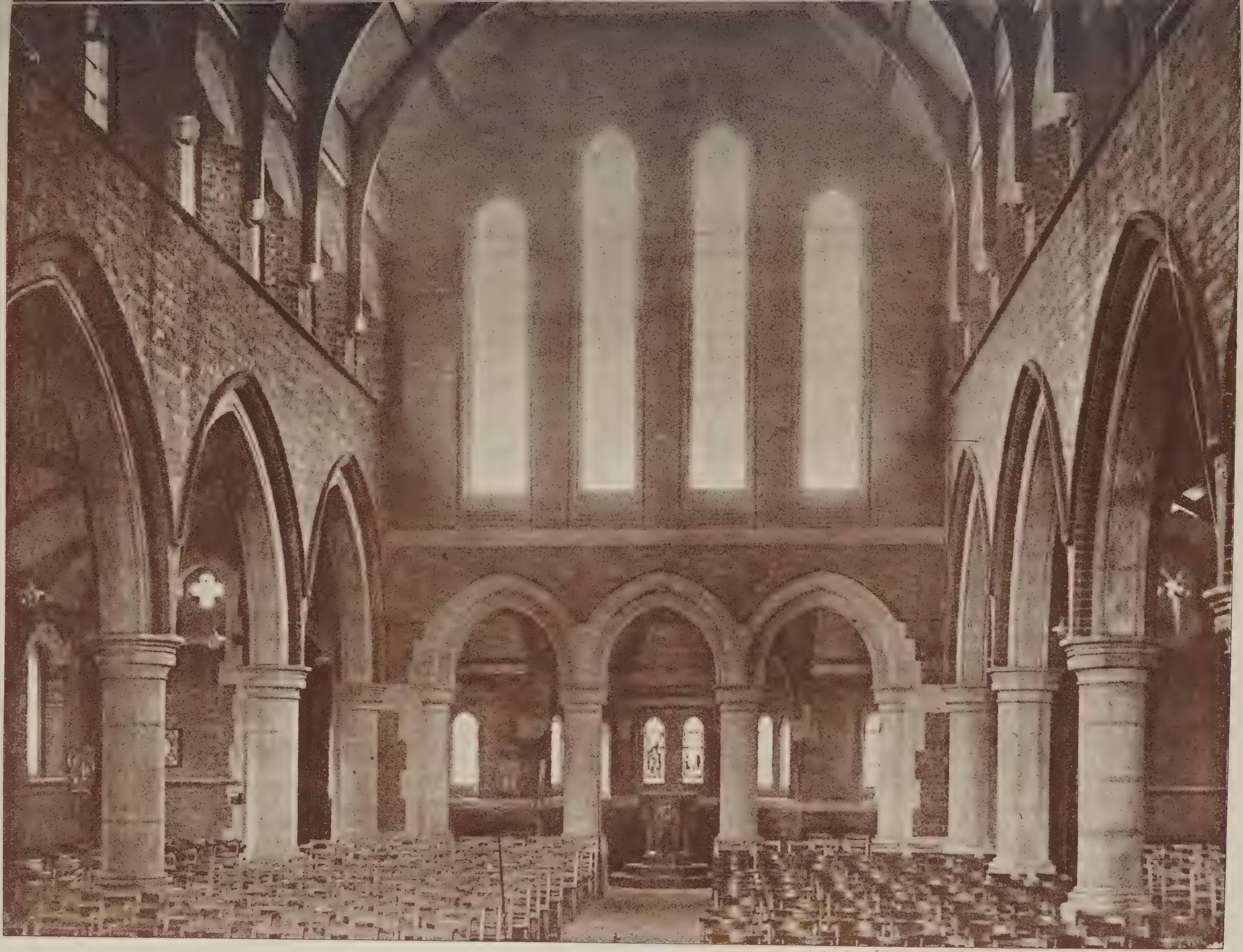
Mark H. Judge.
Surveyor to the Sanitary Assurance Association.

7 Pall Mall: August 27, 1911.

Shoreham and its District.

Sir,—In the illustrations accompanying "Shoreham and its District" in last week's *Architect*, the names of old and new churches have inadvertently been changed; the first illustration shows that of Old Shoreham Church and the second that of New Shoreham. In the description of Old Shoreham the windows of the north and south transepts are referred to, but no mention is made that they are new. Before 1840, when repairs were carried out under the Cambridge Camden Society, the church was in a bad state of repair: wooden frames with mullions lighting the nave, the door in south transept blocked up and partly covered with earth. In an appeal issued on behalf of the repairs the north transept is stated to be in ruins and walled off from the church. The description of the restoration says a window was inserted in the Norman buttress of north transept, "copied exactly from one similarly situated in Clymping Church, Sussex." No mention is made of the south transept window, but my recollection of it is that it is also new, copied from one at another building. There appears to be no authority for the windows of nave and transepts except their being "in the style." Of the chancel windows sufficient remained for the construction of new. The western part of the north wall of nave, and probably the west end, are the remains of an earlier building.—Yours truly,

William G. B. Lewis.



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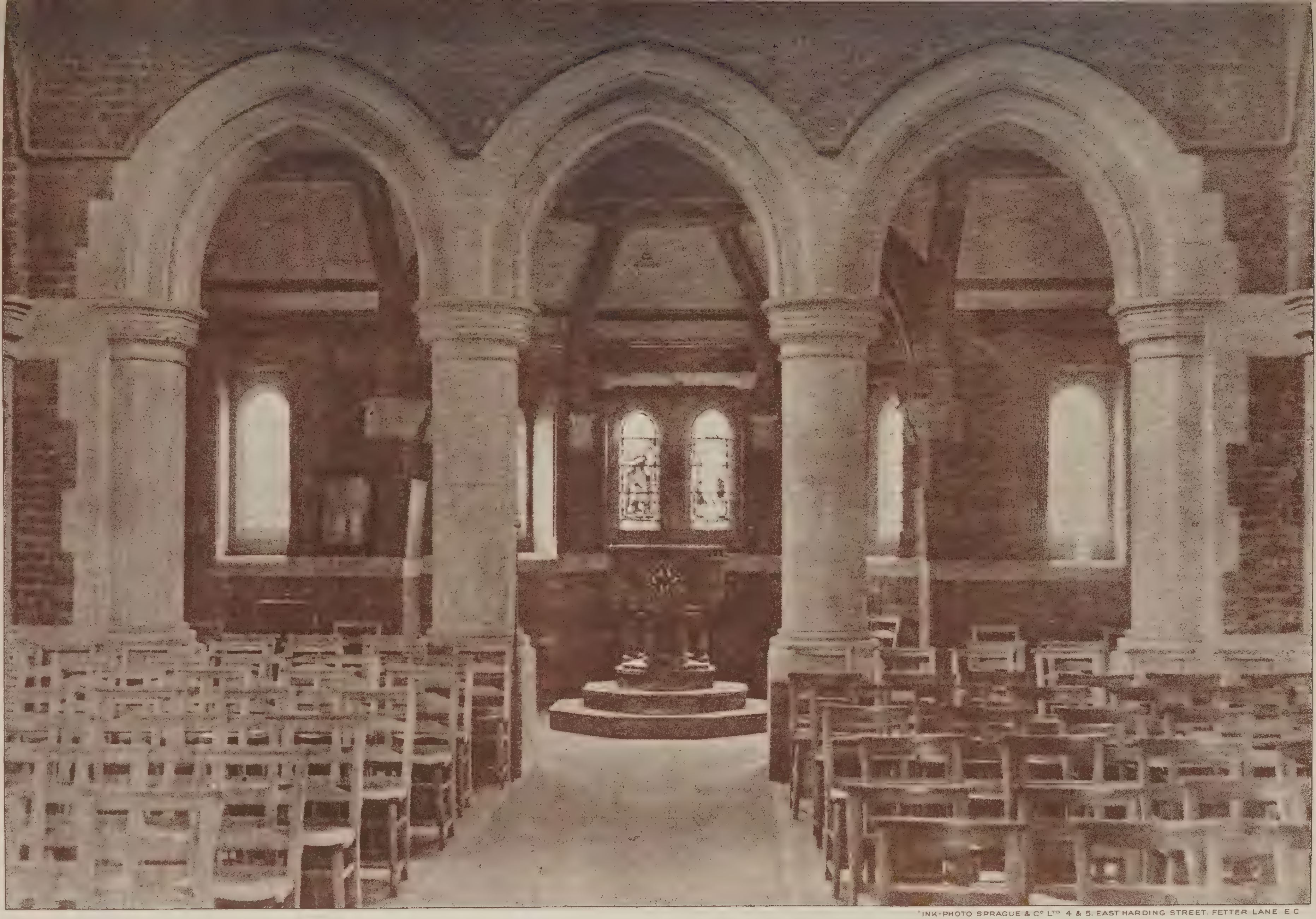

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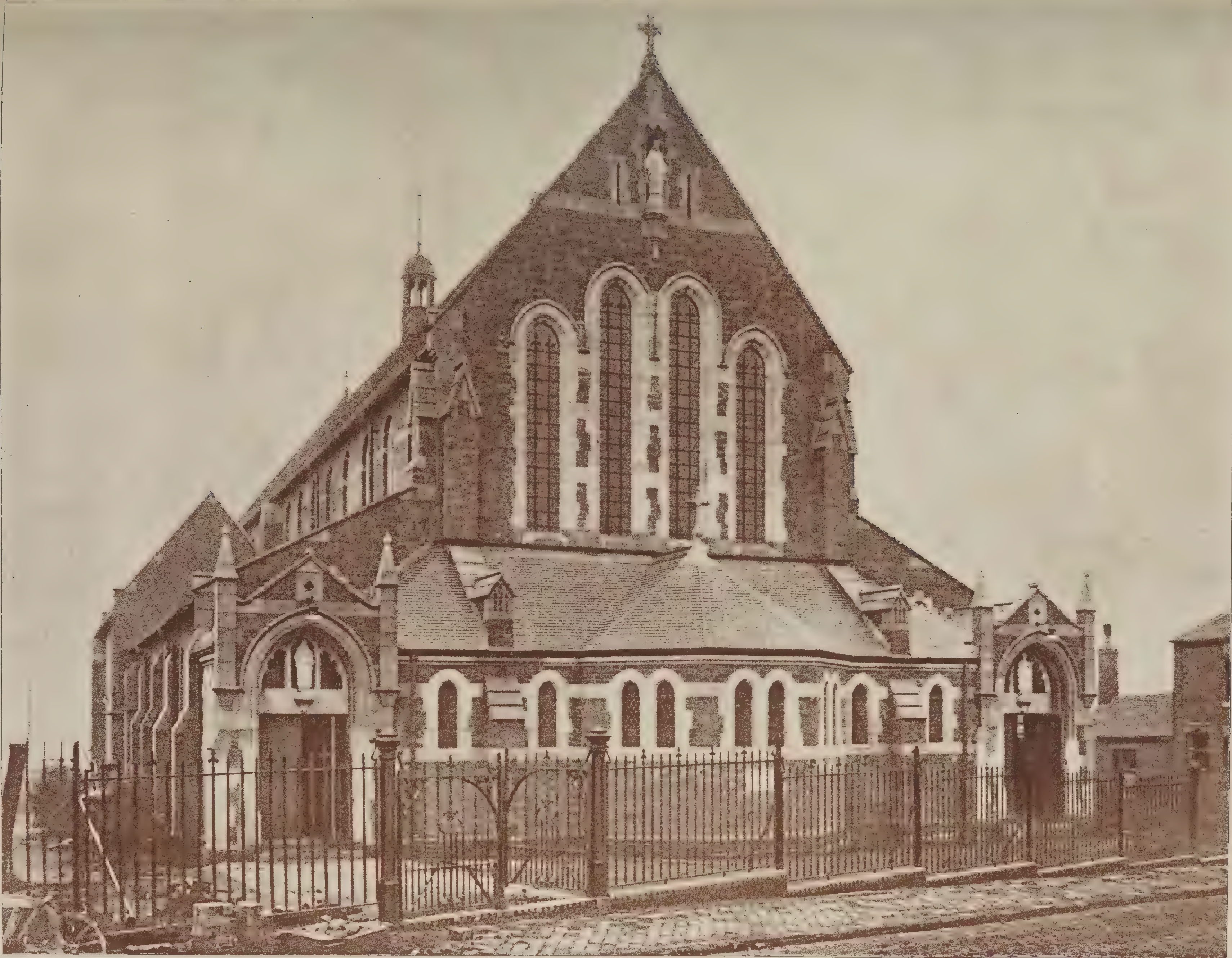

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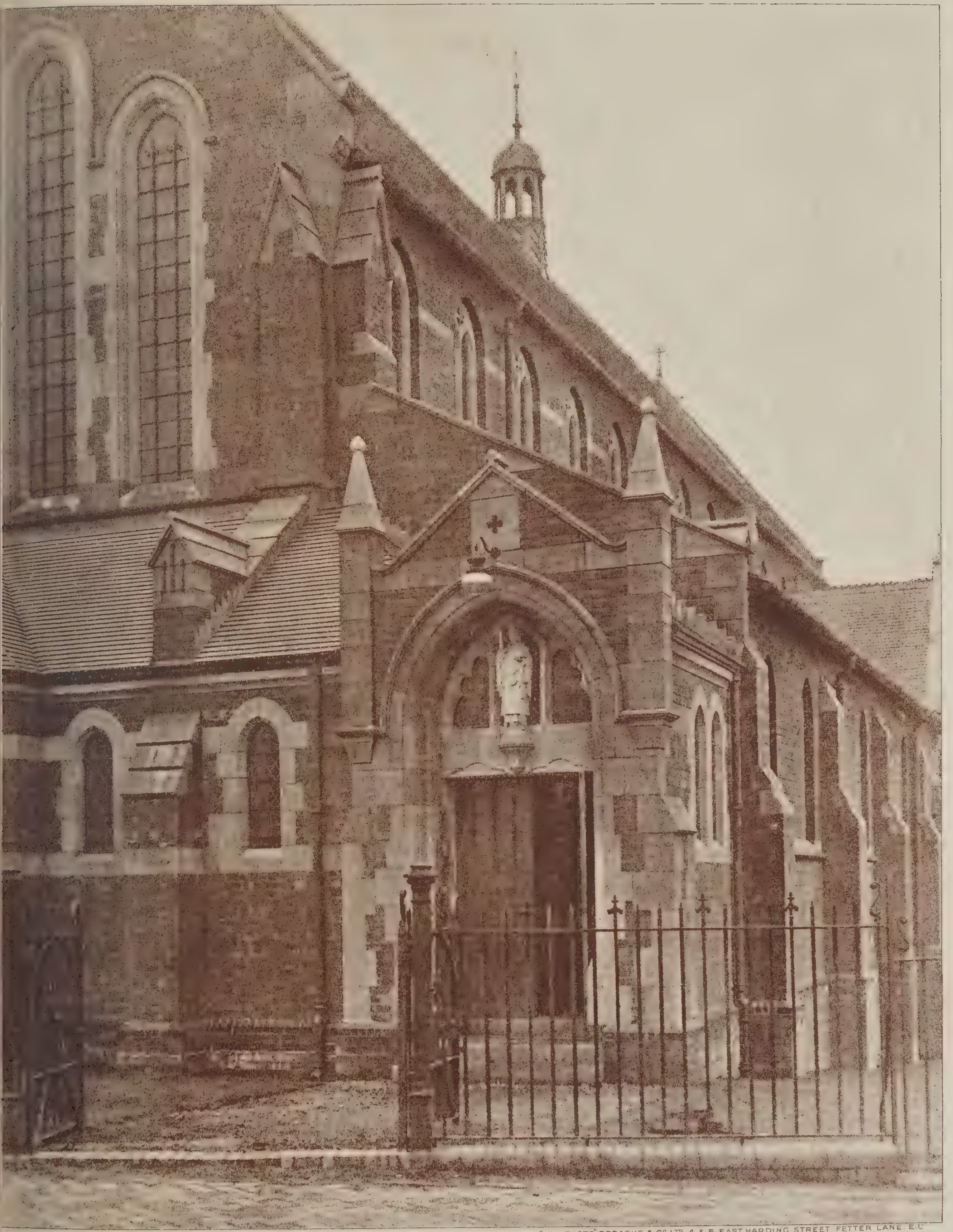

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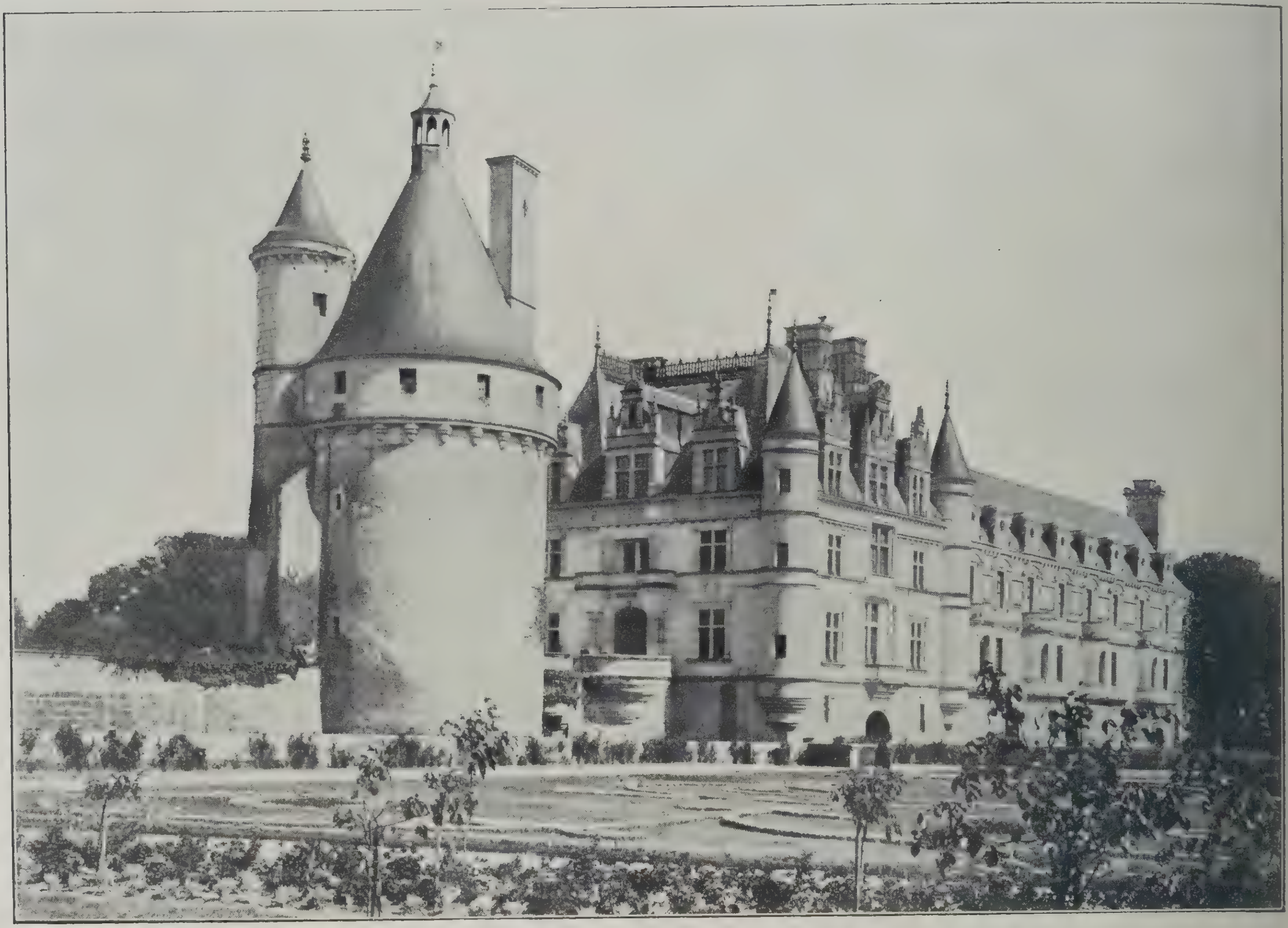

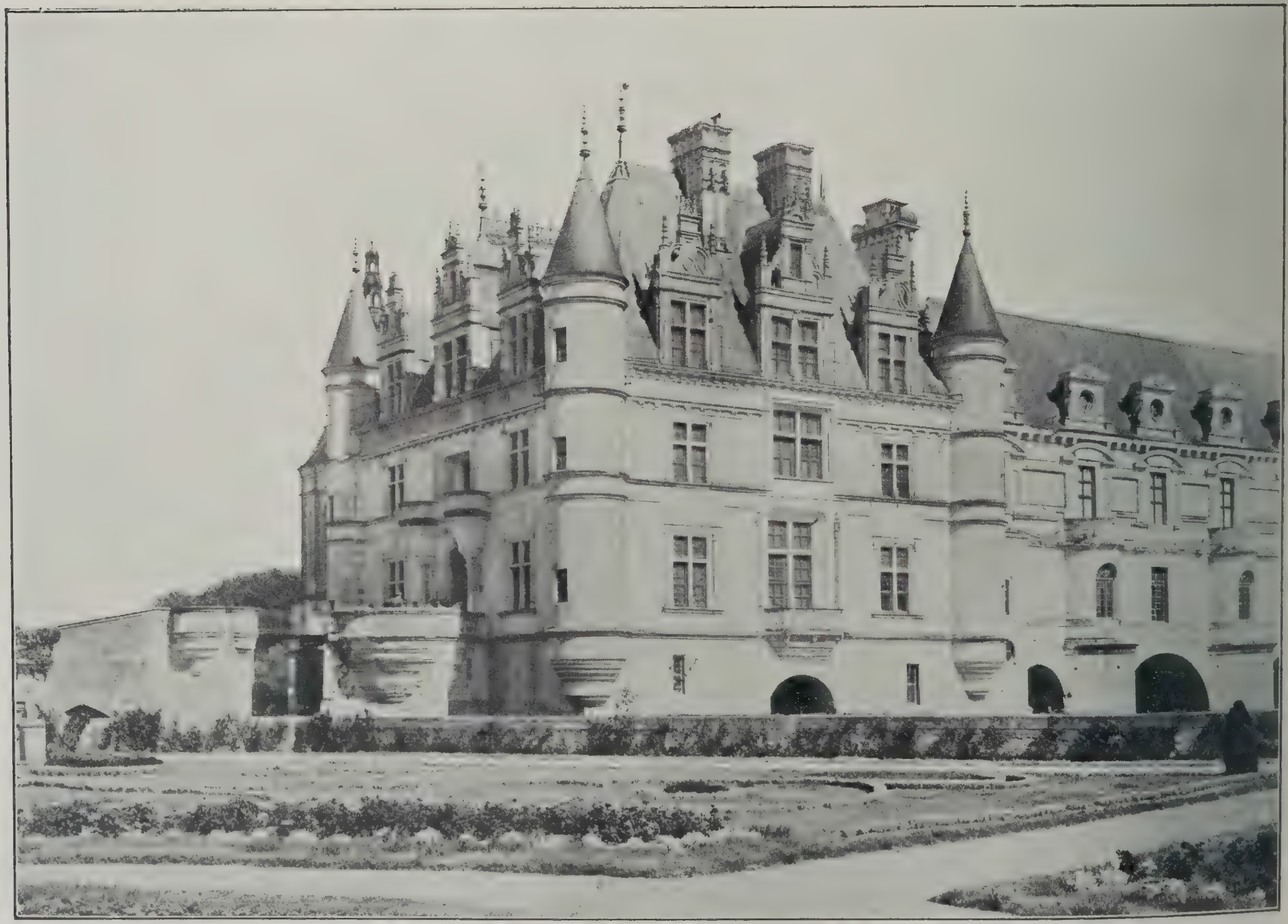

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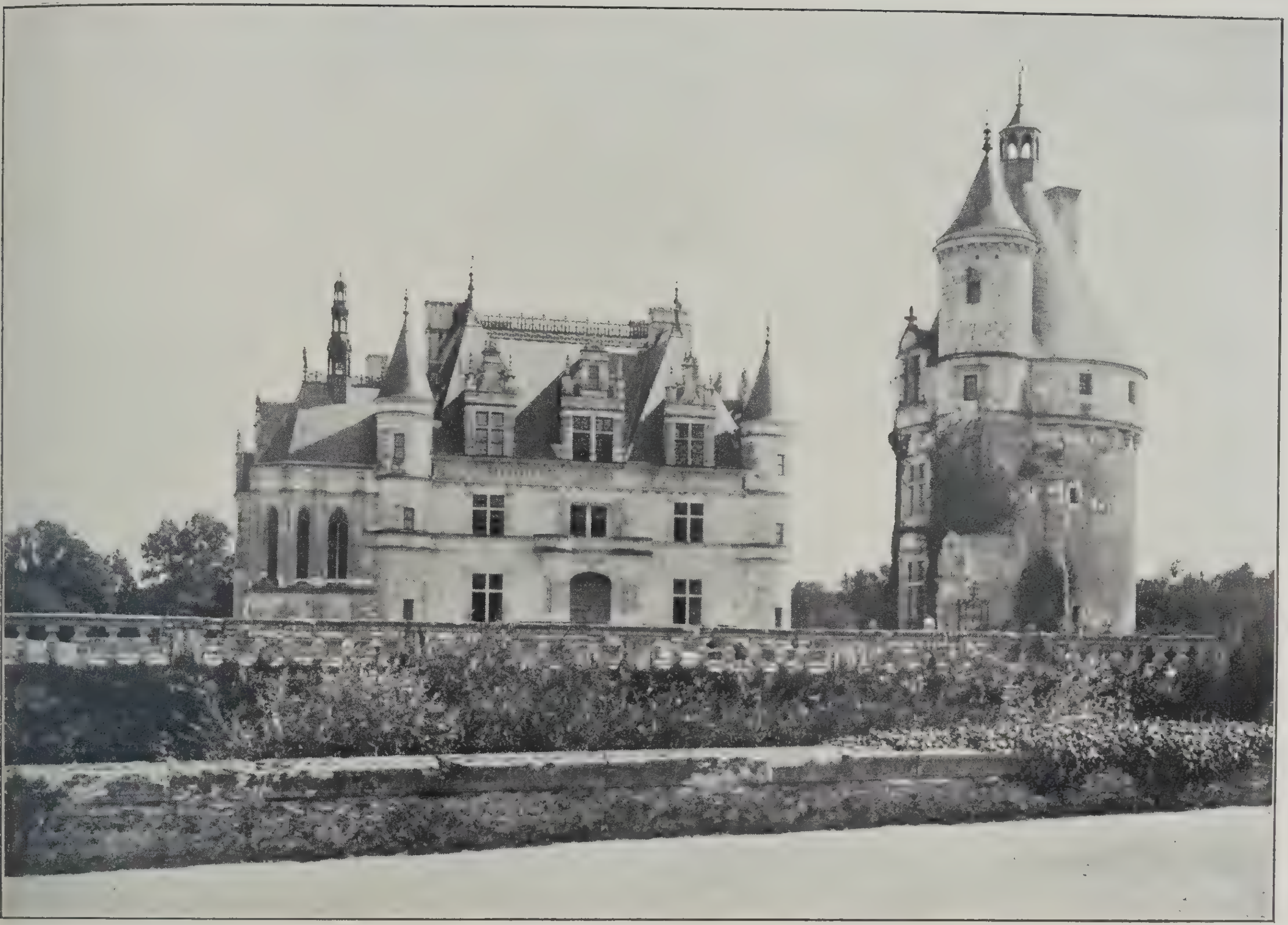

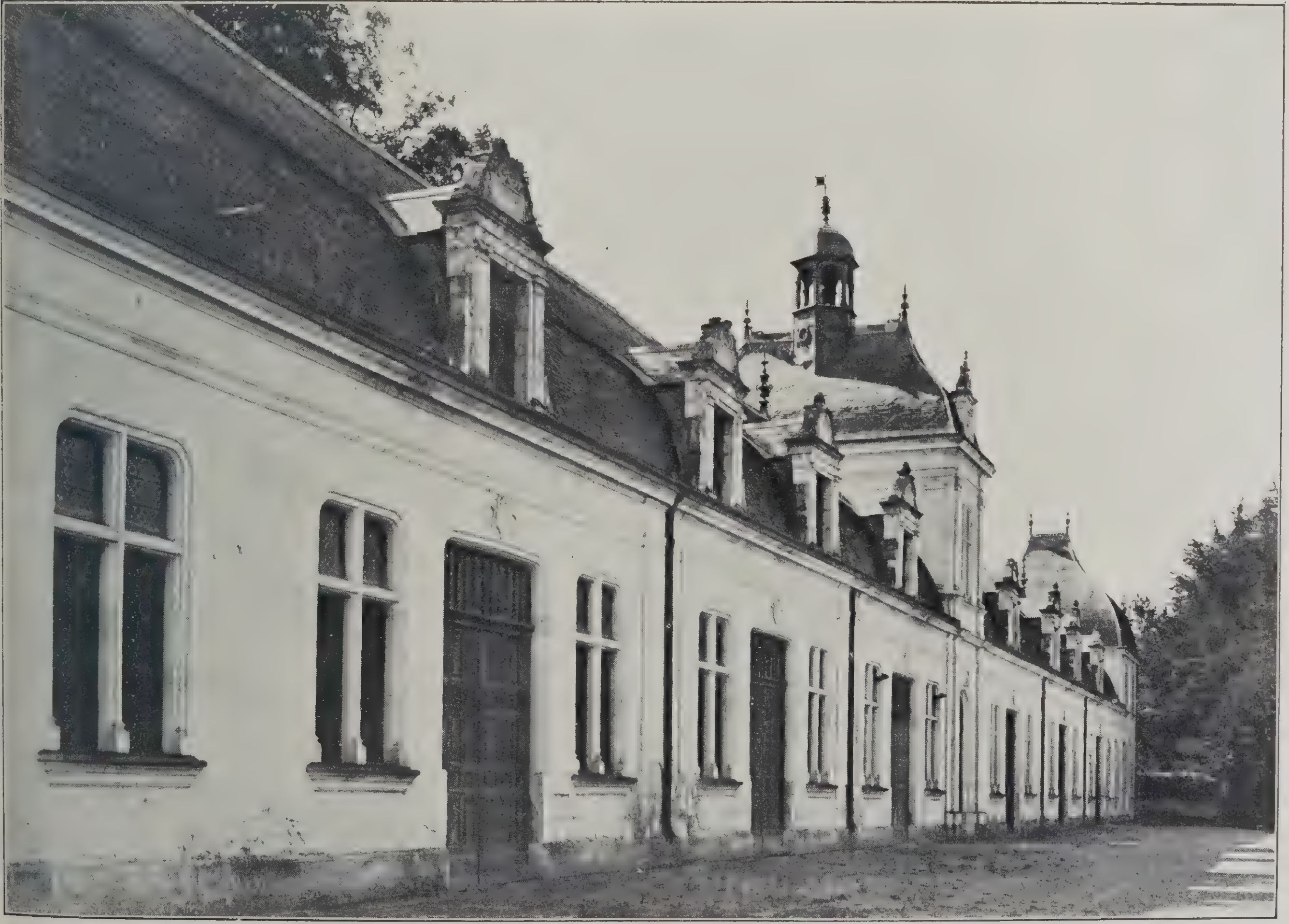

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AND THE STABLES.

UAL EXCURSION, 1911.

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The Architect.

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FORTHCOMING EVENTS.

Saturday, September 9.

Architectural Association : Camera, Sketch, and Debate Club's Foreign Tour to Caen and District.

Tuesday, September 12.

Guild of Architects' Assistants : Visit to Law Courts Extension (Sir Henry Tanner, I.S.O., F.R.I.B.A., Architect).

Friday, September 15.

Manchester Society of Architects : Summer Visit to London (September 15-18).

ZINC OXIDE.

THERE can be little doubt that we are in this country within measurable distance of following the example of France and other countries in the legislative prohibition of the manufacture and use of white lead, and it will therefore become necessary to adopt some other material for the standard or general base of oil paints.

The use of white lead as a basis for paint is without question responsible for a great deal of lowered vitality and injured health, and in many cases for definite lead poisoning and even death amongst those who make and those who use it. White lead poisoning, if incurred in the course of a workman's duties, is legally an "accident" within the meaning of the Workmen's Compensation Acts, and the Board of Trade regulations as to white lead factories are at the present time very severe, and in order to avoid the rigorous enactments in connection with such works several paint manufacturers have given up grinding white lead. The disuse of white lead entirely is therefore only a question of time and of a very short time.

The superiority of zinc oxide or zinc white, from the point of view of health, has been recognised for a considerable time, and with praiseworthy persistence its manufacture has been carried on and its use advocated by a few enlightened manufacturers, prominent amongst whom have been Mr. J. B. Orr and the Silicate Paint Company.

Zinc oxide has also been increasingly used in the manufacture of anti-fouling compositions for ships' bottoms, protective paints for iron and steel, enamels and enamel paints, fireproof paints, and tempera paints. Zinc oxide has peculiar chemical and physical properties which make it specially fitted for these purposes. Thus in the preparation of enamels the property of combining readily with the acid bodies in the gum resins makes the material pre-eminently adapted for being ground in suitable varnishes or varnish-like preparations.

Permanency of colour and durability of film are under the best circumstances characteristic of zinc oxide paints, and are sufficient to outweigh the disadvantage of increased first cost as compared with white lead, so that over a term of, say, twenty years, involving repeated renewals, the use of zinc white paint is more economical in the long run.

One of the stock objections that have been made in the past to the use of zinc oxide for paint is that a greater number of coats are required to produce the same opacity of white as with white lead. This is true, but the objection vanishes when zinc white is used for making up coloured paints. The greater spreading power of zinc oxide which makes each coat of pure white thinner, and therefore a larger number of coats necessary to produce a definite effect, is an advantage when a stain or colouring pigment is added, and a greater surface can be covered with the tinted mixture just as efficiently as a mixture of the stain with white lead can cover a smaller surface.

The extent of the gain of covering power with body or opacity will vary in every case with the pigment used and the amount of it added; but if the colouring pigment is a strong opaque colour there will be very considerable economy in using zinc oxide in place of white lead to make up the desired tint.

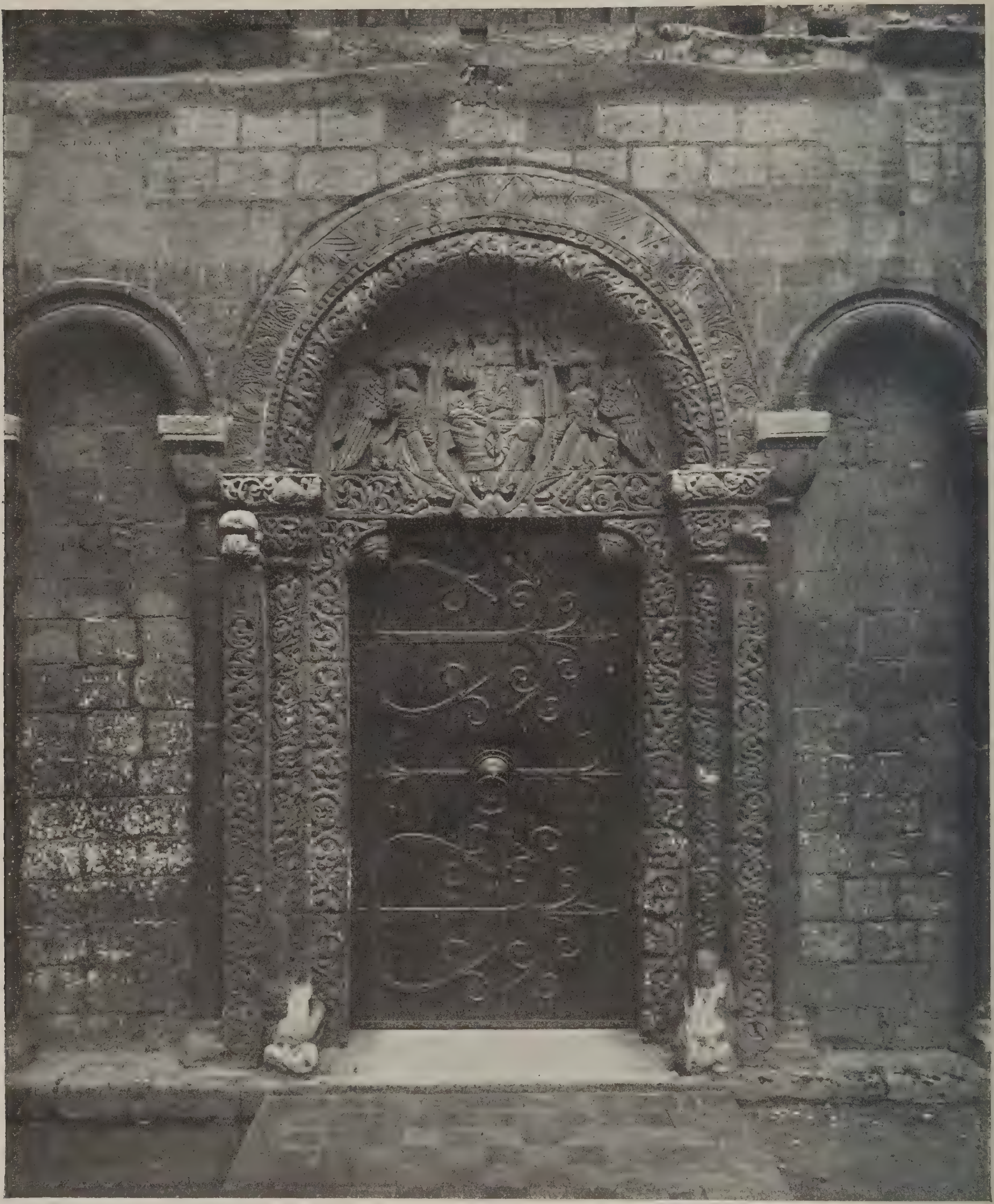
We have said that zinc oxide paints are superior in permanency and durability, under the best circumstances. These circumstances include the proper use of the material, and one of the important points in this proper use is the selection of a suitable drier. Zinc oxide is not of itself possessed of the siccative action of white lead, and for the driers that must be added some preparation of manganese is advisable, either manganese borate, manganese resinate, or manganese linoliate. The most useful proportion of these driers is one-half per cent., with which zinc oxide paint will dry in about eight hours; with less manganese, the rate of drying is considerably slower; with more it is not appreciably faster. On no account should patent driers or other lead compounds be added to zinc oxide.

It is, however, worthy of notice that the presence of a small quantity of lead, not exceeding four per cent., is an advantage to the quality of zinc oxide. This brings us to a consideration of the two principal methods of manufacturing zinc oxide, the "direct" and the "indirect." In the former the material is prepared "direct" from the ore, in the latter from the metal zinc, which has previously been extracted from the ore. Of the details of the manufacture we need not here dilate: they have been well explained in a paper read before the Paint and Varnish Society by Mr. Gaston Depierres (reported in *The Architect*, May 17, 1910), and issued amongst the Papers of the Society for 1909-1910. The important point for users of zinc oxide paint is that in the opinion of those well qualified to judge, the presence of a small quantity of lead salts, chiefly lead sulphate, is beneficial to the practical qualities of the paint and not deleterious to health.

Although the presence of a small amount of lead is not injurious, but beneficial, it must be remembered that this must arise during manufacture so as to ensure complete molecular distribution, which could not be obtained by the addition of lead salts to zinc oxide.

It appears that owing to the fact of zinc oxide having itself no siccative action on linseed oil, such as that possessed by white lead, it is advisable, though not absolutely necessary, to use a prepared drying oil in which the raw linseed oil has been treated under a moderate heat with one of the salts of manganese, the borate or the linoliate. Another reason for the use of a drying oil is that zinc oxide is ground with a much larger proportion of linseed oil than white lead. This fact also makes it desirable that for a flat coat part of the zinc oxide should be ground in turpentine instead of the whole being ground in oil.

Thus it will be seen that there are a number of points of practice in the use of zinc oxide which differ from



THE PRIOR'S DOOR.—ELY CATHEDRAL.

those prevalent with white lead, and these minutiæ must be understood by the painter who would give zinc oxide its proper chance. An excellent little book on "Zinc Oxide" by Mr. J. Cruickshank Smith has been published by The Trade Papers Publishing Co., Ltd., which gives much practical information on the subject.

Amongst the Papers of the Paint and Varnish Society for 1909-10, besides that on Zinc Oxide by Mr. Depierres, to which we have already referred, are included "The Methods of Painting on a Lime Surface," by Mr. W. Fourniss; "Colour Nomenclature," by Mr. J. W. Lovibond; "The Manufacture of Venetian Red and other Iron Pigments," by Mr. J. G. McIntosh; "The Action of Driers on Linseed Oil," by Mr. T. A. Davidson. Each of these papers when read was followed by an acute and expert discussion, and an evening was also devoted to the discussion of "The Advantages and Disadvantages of Washable Distempers," opened by Mr. J. Cruickshank Smith, and another to a demonstration of "Marbling and Graining," by Mr. W. J. Cloake. There is therefore in this little volume a wealth of practical and scientific information on paint and varnish given by expert workers and manufacturers.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

ALTHOUGH not very numerous, the drawings submitted for our August competition are of good quality, and our contributors have seized the opportunity which a pen-and-ink drawing allows of a compromise between the representation of a thing as it is, which is the function of an architect's diagram or geometrical drawing, and as it looks, which is the work of a photographer and, more or less, of a painter.

We purposely vary the subjects set monthly so that our students may combine the advantages of making measured drawings with those of freehand sketching. The latter teaches one to realise the effects produced, the former the means by which those effects are obtained. Both lessons are essential for the student of architecture.

"Doric" has sent a sketch of the reredos in the church of St. Michael le Belfry, York, an eighteenth century insertion in a sixteenth century church. The drawing is effective and at the same time clearly indicative of the detail of the subject.

Mr. T. Owen Thirtle has contributed two sketches, one of a staircase in Greyfriars Lodge, and the other also of a staircase at No. 10 Bedford Street, both in the city of Norwich and both of eighteenth century date. In each case Mr. Thirtle has given a general view of the staircase and a detail to large scale of the handrail, balusters, and string, which makes his work quite a useful study. In the Bedford Street example the second baluster on the tread should have been drawn so that the manner might be shown in which in this case, as in the other, the designer got over the difficulty occasioned by the cut string. We are glad to note that Mr. Thirtle is making steady improvement, but he must try to prevent his pen-and-ink drawing from becoming scratchy.

Mr. E. H. Gibson has again gone to Holy Trinity Church, Leeds, for his subject, and has sketched part of the sanctuary. His general sketch is a little too flippant in drawing, but a large scale detail of some enrichment makes amends by its greater thoroughness and care.

"Cot" has sent in a small outline perspective of a fireplace with oak panelling and mantel taken from an old house at Buntingford, Herts, and erected in the Hall i' th' Wood, Bolton. The author's drawing gives but a general idea of the work as it is and does not convey any impression of it as it looks. This Jacobean work is better left alone by the young student of architecture, as it tends to a deterioration of taste.

Mr. C. S. Carter has made a good drawing of a carved achievement of the royal arms of Anne, Queen of Britain, France, and Ireland, which is now in the Victoria and Albert Museum.

We have decided to award for the month of August prizes of half-a-guinea each to "Doric," Mr. T. Owen Thirtle, Mr. E. H. Gibson, and Mr. C. S. Carter.

NOTES AND COMMENTS.

The prospectus of the Faculty of Engineering at University College, London, gives particulars of some courses of instruction beyond those of the School of Architecture which would be useful for architectural students or young practising architects. First, an engineering class for architectural students deals with the properties and testing of materials of construction, with iron and steel construction in buildings and laboratory tests on building materials. The course is in two terms, the first, devoted to lectures, on Mondays at 4, Tuesdays at 5, and Thursdays at 4; whilst in the second term drawing office and laboratory work occupies the whole of each Monday. The fee for the class is £6 6*s*.

Then there is a course on heating and ventilating engineering, comprising lectures, laboratory instruction, experimental research and drawing office work. A tour in Germany to inspect important installations there will also be arranged. By passing through a three years' course a diploma in heating and ventilating engineering can be obtained. The College course in surveying and levelling appears particularly well arranged and thorough, and in addition there are a summer vacation surveying class, in which the whole time for three weeks is spent in carrying out a practical survey in the country, and a post-graduate lecture course in photographic surveying.

The School of Architecture at the College now adds to the certificate course and the B.A. degree course (honours in architecture), which have been in successful working for some years, a new course in academic design, which will be conducted mainly on the lines of the course in the Ecole des Beaux-Arts, Paris, under the supervision of Dr. J. J. Burnet, A.R.S.A. This is an interesting and novel departure in architectural education in England, and its results will be awaited with some amount of curiosity. The results of Beaux-Arts training in France are not altogether satisfactory, those in the United States are so. What shall we see in England?

In connection with the School of Architecture at University College there will be a course of ten lectures by Mr. Edward S. Prior, F.S.A., F.R.I.B.A., on English Mediæval Architecture, to which admission will be by tickets issued without fee. These lectures will be delivered on Thursday evenings at 6 P.M., and will be illustrated by lantern slides. An evening class in design, with Mr. Leonard Stokes and Mr. Edward Warren as special visitors, meets twice a week, and is open to all architectural students for the small fee of half-a-guinea. This practically free evening instruction, both lectures and class, is rendered possible by the generosity of the Worshipful Company of Carpenters.

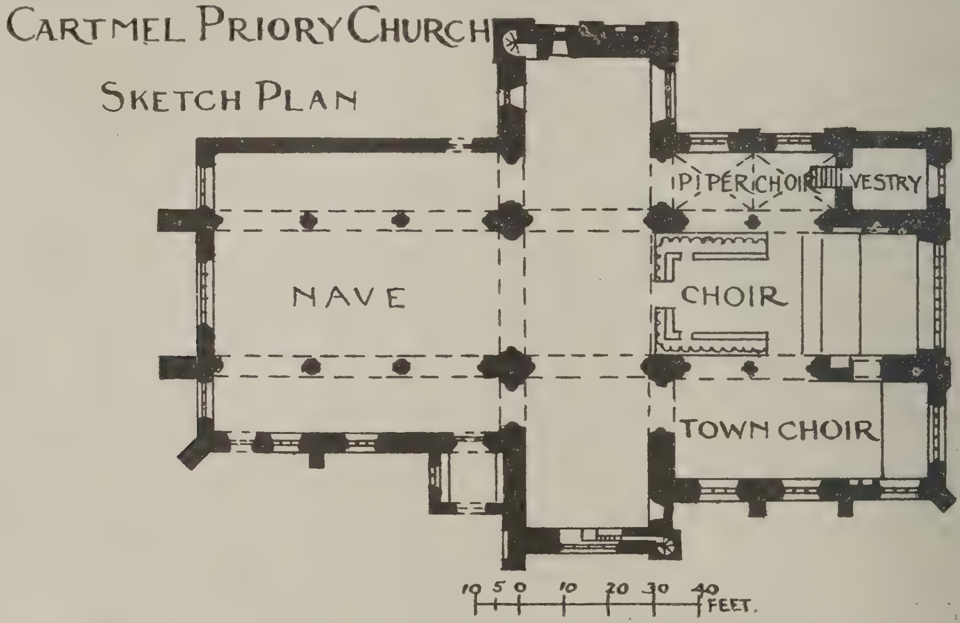
The cost of public buildings in future is likely to be somewhat increased by a circular issued by the Local Government Board to local authorities drawing attention to the recommendation of the Advisory Committee of representatives of Government Departments with reference to the fair wages clauses in contracts. The circular was as follows:—"Sir,—I am directed by the Local Government Board to draw the attention of the local authority to the accompanying memorandum embodying the resolution passed by the House of Commons on March 10, 1908, on the subject of fair wages clauses in Government contracts, and the recommendations made by the Advisory Committee of representatives of Government Departments which has been established as suggested in Paragraph 124 of the Report of the Fair Wages Committee of 1908 (Cd. 4422). It will be seen that the Advisory Committee recommend that clauses such as those inserted in Government contracts should also be introduced into contracts which are not entered into by Government Departments, but which involve the expenditure of public money or other consideration granted by a Government Department, or which require the approval of the Department. It appears to the Board that the policy adopted in the case of Government contracts should be followed in the cases of all contracts for the execution of works or the supply of materials which are entered into by local authorities or by, or on behalf of, any committee wholly, or in part, appointed by a local authority. Whilst they are aware that many local authorities specify in their contracts conditions to be observed by the contractor as to rates of wages and other matters affecting persons employed by him, the Board think that in every case the authority should give the matter careful consideration with the view to the introduction in the contracts of clauses on the lines of those inserted in Government contracts.—I am, Sir, your obedient servant, H. C. Monro (Secretary)."

We hope the local authorities will recognise that so-called "fair wages" mean increased expense, and will not sweat architects' brains in a vain endeavour to get a sovereign's worth of building for ten shillings. "Fair wages" do not benefit the workman in the long run. The town hall costs more, the rates go up, and the ratepayer charges the workman more for his rent and more for his food and clothing. The only real effect is to lessen the value of money. A workman never gets more than the value of his work whether he receives the Scriptural penny or the Yankee five dollars for his day's work. The people who suffer are those whose income is fixed to a definite number of pounds per annum.

This month's number of the *Art Journal* now deals with Boughton in its series of articles on interiors of English mansions by M. Jourdain, and several fine illustrations of furniture and interior decoration are included. Internal decoration is further concerned with an article on "Gilt Leather Rooms" by Francis Lenygon, with which are two coloured plates as well as black and white illustrations of sumptuous examples. The series of articles on "Tapestry Weaving in England" by W. G. Thomson now describes, with illustrations, the seventeenth century productions of the Mortlake manufactory, as to which the author is enthusiastic.

Amongst the interesting articles in this month's *Connoisseur* is a description of the collection of miscellaneous pieces of old furniture formed by Sir Frederic Cowen, illustrations of some of the most remarkable of which are given. The series of articles on "Lace" by Bernhard and Ellen M. Whishaw now describes Punto de Aguja and Point d'Espagne. The Salting collection forms the subject of another article, the second part of a series, and metal work, ivories and pottery are the classes of objects of art illustrated in this instalment.

Councillor Johnston, of the Newcastle City Council, seems to have peculiar ideas as to "fair wages" for architects, but perhaps the "President of the National Association of Architects" (when found) may enlighten his ignorance and point out the weaknesses of the following resolution, of which the worthy Councillor has given notice:—"That this Council advertise and offer for open competition three prizes of £50, £30, and £20 respectively, for plans for the laying out of 200 acres of the Walker Estate upon model cottage lines. Competitors to forward to the Town Clerk a ground plan showing situation of cottages and land for open spaces and public buildings, also four sets of plans showing four different types of cottages on the self-contained principle in semi-detached or other styles; cottages to have three, four, five and six rooms, with bath; the plans to show amount of garden space allotted to each type of cottage; minimum number of cottages per acre to be not less than 12, and maximum not to exceed 15. That the President of the National Association of Architects be asked to appoint two members of his Association who with himself shall judge the plans and award the prizes, the selected plans to become the property of the Council."



Apropos of the ventilation of churches, a criticism has been put forward that the beautiful Lady chapel of Liverpool Cathedral has no window made to open, so that there is a fear that "mal de l'église" may be experienced here as in so many mediæval churches and also modern ones, where nowadays the conditions of worship are so entirely different from the past. A church that is filled with a congregation for an hour or two requires more fresh air than one in which only a few are gathered at a time, and these for a comparatively short period.

A wonderful tale comes from America of a Welshman who emigrated to Chicago and imbibed the national ability for hustle, which he demonstrated by building a house complete in a couple of days. The house consists of two rooms large enough for one or two persons to live in. The outside dimensions measure 12 ft. by 20 ft., and the rooms, 11 ft. by 9 ft. and 8½ ft. by 9 ft. respectively, the ceilings being 8 ft. 6 in. in the clear. The floors are tiled in ornamental pattern; the walls plastered two coats with hard finish, and the larger of the two rooms has a plastered ceiling with hard finish. The roof was covered with green glazed Spanish tiles, with hip rolls and cresting. There were electric lights on the ceiling, a convenient telephone, and an enamelled steel closet inserted in one of the walls. The outer walls were coated with a quick-setting plaster, covered with pebble dash made of white Portland cement, sand, and pea gravel.

The enterprising owner got possession of the site on a Wednesday at 8 A.M., but meanwhile all the materials for completing the house were on carts waiting on the road outside. Then the procession commenced, and everything had been wheeled into the site by 12 noon. The tile-layers commenced at 12.30 P.M., and two relays of men had the walls up by 11 P.M. of the same day. Work was resumed at 8 A.M. on Thursday, the 27th, and the tile roof was finished by 9 P.M. on the same day. By the time the roof was finished, the whole interior had been plastered and trimmed, and the outside covered with pebble dash stucco. Only the painting of the woodwork was done on the Friday, April 28, and the garden was laid out and planted the same day.

The moral of the tale is the fact that everything was ready at the time possession was taken of the site, and this is the secret of rapidity in building, whether it be a two-roomed cottage or a £100,000 opera-house.

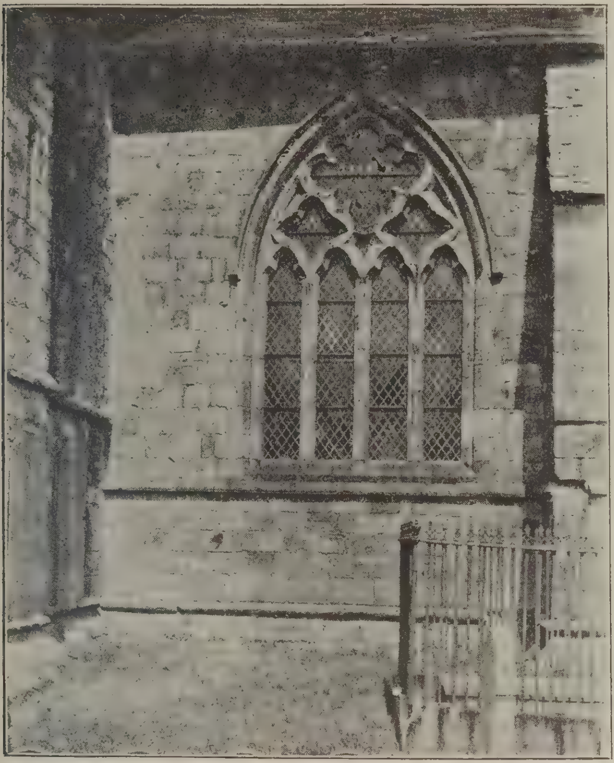
THE PRIORY CHURCH, CARTMEL.

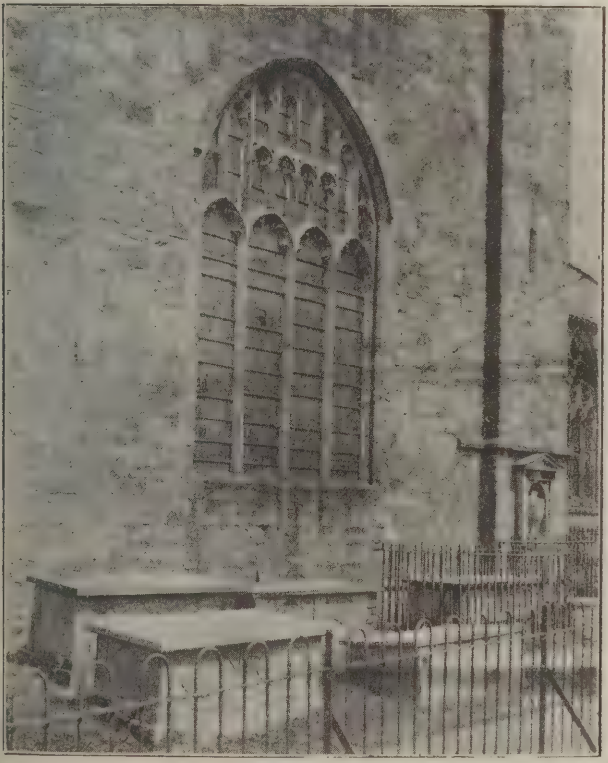
By Professor Charles Gourlay, B.Sc., A.R.I.B.A.

THE small town of Cartmel in Lancashire possesses a magnificent church, dedicated to St. Mary, charmingly situated in a valley fully two miles from the town of Grange-over-Sands.

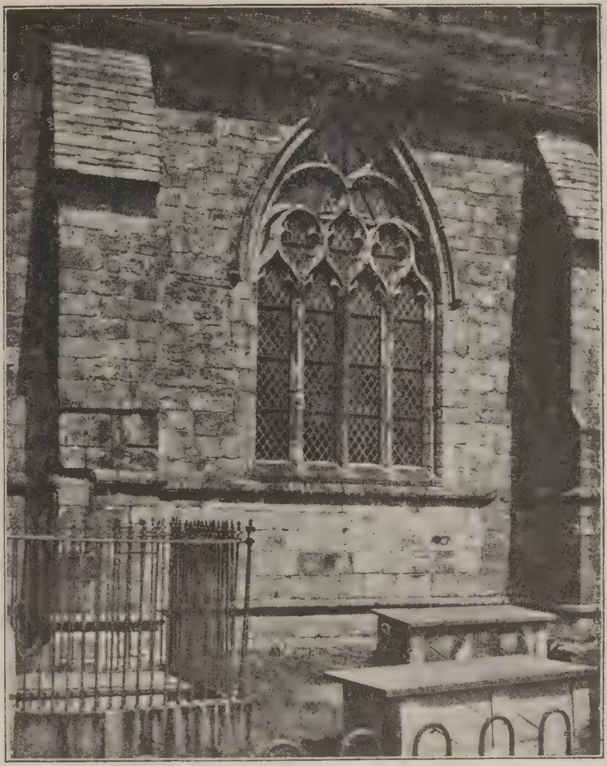
The church is cruciform in plan, the nave has central and side aisles, the choir has chapels in place of aisles, but the north and south transepts are without aisles.

The present building dates from 1188 when William Marshall, afterwards Earl of Pembroke, founded a Priory of Canons Regular of St. Augustine at Cartmel, and work of this early period is visible in the arcading on each side of the choir, which has round arches, the capitals being carved with Transitional Norman foliage and having square-edged abaci. The four arched openings from the transepts into the nave aisles and choir chapels are, however, pointed, although the detail generally is Transitional. The choir arch over the eastern piers at the crossing is evidently a later addition, as its orders do not correspond with the section of the piers upon which it stands.

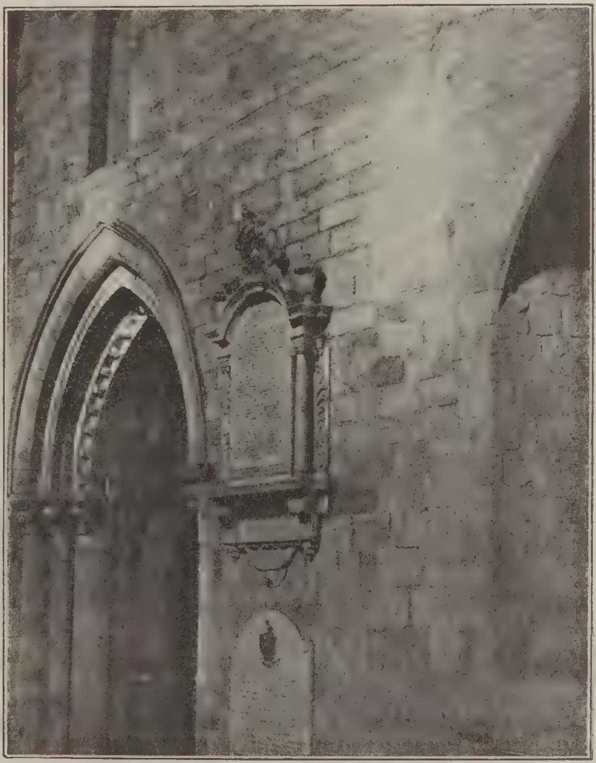

WINDOW OF SOUTH CHAPEL OF CHOIR.


WINDOW OF SOUTH TRANSEPT.

The actual building of the transepts and the four piers of the crossing also belongs to this early period, but the round or pointed headed windows have nearly all been replaced by perpendicular ones. The old north wall of the nave contains an Early English doorway, which led from the cloisters into the nave. The principal entrance to the church at the present time is the Transitional doorway leading into the south aisle of the nave, which has a post-Reformation porch next to the west wall of the south transept.


WINDOW OF SOUTH CHAPEL OF CHOIR.

The triforium of the choir consists of a simple pointed arcade extending its entire length. This arcade has been built up at two parts with the object of strengthening the wall, this probably having been done when the later clerestory was built. The clerestory is perpendicular, and

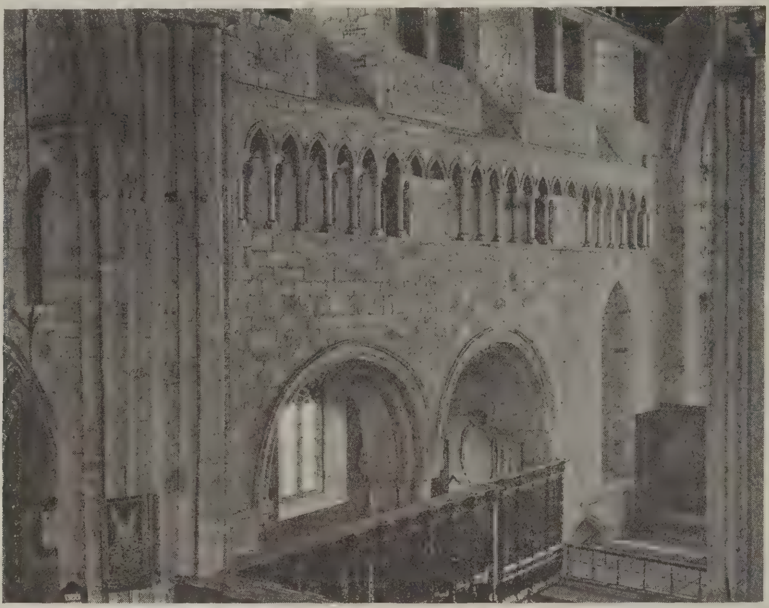

INTERIOR OF EAST WALL OF SOUTH TRANSEPT, SHOWING RAWLINSON MONUMENT.

the whole height of its windows is not seen from the interior of the choir. The segmental arched soffit of each window cuts off the tracery, which is seen only from the exterior of the church.

The east window is of nine lights, dates from about 1400, and is most beautiful both in design and detail. It is 54 feet high by 24 feet wide, is made of Caen stone, and is a fine example of perpendicular tracery. The sedilia on the south side of the presbytery is Early English work but has been broken through, only about two seats now remaining, when the Decorated monument known as the Harrington tomb was placed in position. The base of this monument dates from about 1300 and the upper part from about 1350. Its carving, though much mutilated, is of singular beauty.

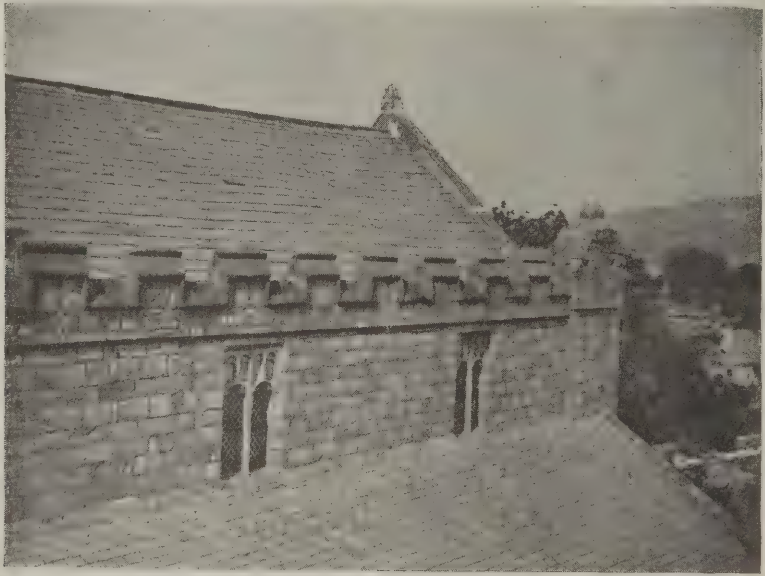
The entire church is roofed with timber, which shows internally, except the north choir chapel, known as the "Piper Choir," which is vaulted with stone. This chapel is, in length, equal to two of the three bays of which the choir is composed. To the eastern end of this chapel the vestry was added in 1678.

On the south side of the choir there was a chapel of the same size as the Piper choir, and remains of shafts and springer-stones still in position show that it had been vaulted. In the Decorated period (about 1350), however, this chapel was enlarged to form the "Town Choir," or parish church. It contains a piscina and two sedilia, also three three-light windows in the south wall which are of excellent design and detail, the tracery being different in each. The east window of this chapel is of five lights, and is a perfect example of the transition from the Decorated to the Perpendicular periods. When the dissolution of the priory took place in 1537 this chapel was the only portion left with its roof untouched, all the other portions of the church roofs being stripped of their lead covering and left to decay, until in 1618 Mr. George Preston commenced the work of restoration by re-roofing the chancel and nave.



NORTH SIDE OF CHOIR.

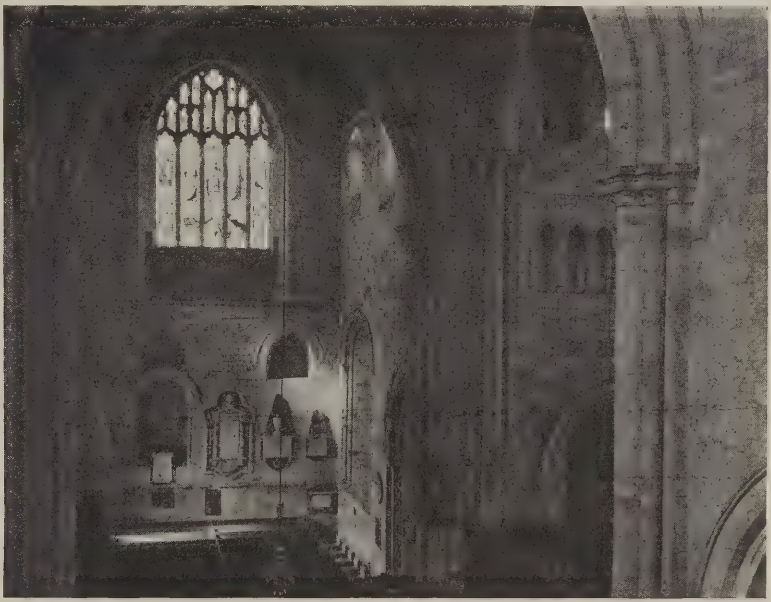
The north transept has a four-light perpendicular window in its east wall, which has obviously been formed internally by taking away the stonework between two lancet windows and throwing them both into one, the arch-stones being re-used to make the elliptically formed soffit seen internally, the remaining jambs of the lancet windows still serving as jambs to the enlarged opening. Well-designed Perpendicular windows have replaced the Early English ones at the ends of both transepts, and in fact the whole eastern arm of this church is an example of how the later men, desiring more light into the church, destroyed Early English windows and substituted enlarged ones in the style then current.



EXTERIOR OF CLERESTORY, SOUTH SIDE OF CHOIR.

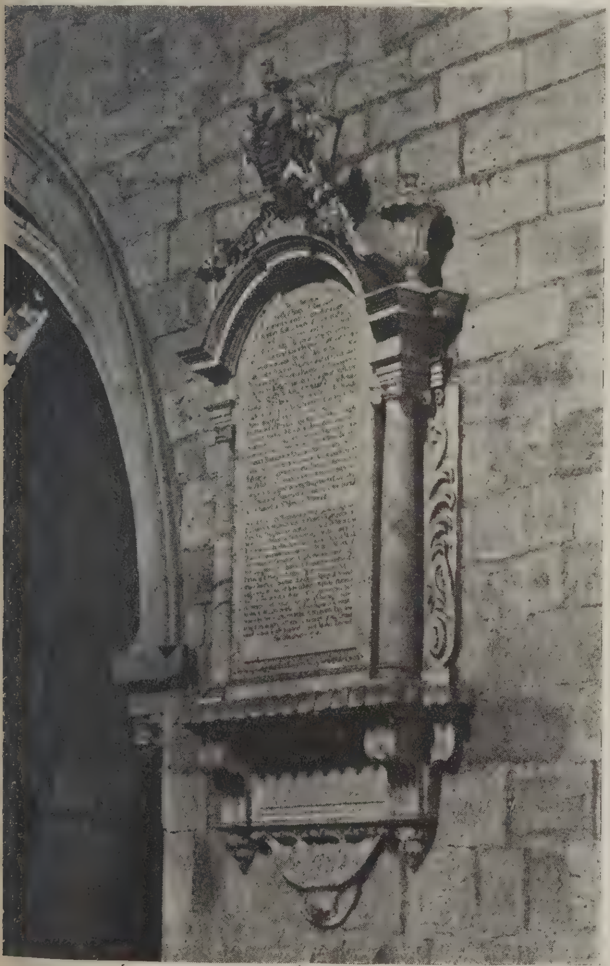
On the east wall of the south transept there is the Rawlinson monument, which was erected in 1706. This monument being both perfect in scale and excellent in detail is an example which shows how beautiful a wall monument of this nature may be.

The cloister appears originally to have been placed to the south of the church, the blocked-up door in the end of the south transept having probably led to the dormitory, while there is a recess in the exterior of the west wall of this transept which may have been a book-cupboard.



INTERIOR OF NORTH TRANSEPT.

About the year 1400 the Transitional nave, except the outer wall of its north aisle, was pulled down and the present nave erected. The nave is short, being only three bays in length, the pillars of the arcading are octagonal on plan and have simply moulded capitals and bases, the arch-mould is in three orders but these are only chamfered on edge and there is no hood-moulding. There is no triforium, but evidence that the Transitional nave had a triforium exists in the fact that similar openings to those which at present admit light to the triforia of the choir from the transepts still remain, though now blocked up, on the west side of the transepts. The nave clerestory contains two two-light windows. All the nave windows are of good Perpendicular design and the small doorway at the south-west corner of the nave still retains its fifteenth century oak door, which is of great interest.



THE RAWLINSON MONUMENT.

The original tower at the intersection of nave, choir, and transepts did not rise much higher than the ridges of the adjoining roofs, but about the year 1400 large arches were sprung from the centre of the sides of the square, and upon these an additional tower was placed to serve the purpose of a belfry. This arrangement of a square placed diagonally upon another square is unique, and though a peculiar design, is not unsatisfactory, while the detail of the belfry windows, which are fitted with green slate louvres, is very good. There is an embattled parapet all round the clerestory and transept walls, round the gable of south transept, the west but not the east gable of the church, also round the tower and the belfry.

When one considers that the roof was off the choir for more than eighty years it is remarkable to find that the twenty-six old mediæval wooden stalls, with their misereres dating from about 1450, are still in position. The bench-ends show evidence of having been exposed to the weather, but the seats have evidently been protected by being covered up probably with rubbish. About 1618-20 the present early Renaissance oak canopies, having pierced tracery backs, were placed upon the old stalls. The pierced tracery panels in the screen across entrance to choir are made in two heights so as to be opened during service, the upper parts being hung with modern brass edge hinges, while the lower have old hinges made of iron. These canopies are very richly carved with the vine spirally disposed and combined with the emblems of the Passion, and are in an excellent state of preservation.

The modern restoration of the church began about 1830 and continued more or less steadily till about 1870, when it was completed in a general way, although some parts still require attention.

The modern monument at the west end of the north aisle of the nave is composed of Devon and Derbyshire marbles resting on a base of Furness limestone, and is an excellent example of the use of these beautiful materials. The monument is to the memory of Lord Frederick Cavendish, and was designed by Messrs. Austin & Paley, the figure being by Mr. Woolner, R.A. It was erected in 1885.

Although the church contains good work belonging to all the periods of English Gothic, for its building has extended over the whole range of the mediæval styles in England, yet its design is most dignified externally and internally. The exterior is, if anything, rather severe in its aspect and its interior is rather cold and colourless, largely owing to its lack of stained glass. Its proportions are, however, admirable, its detail is beautiful, and the entire church is well worthy of being carefully studied by architectural students, who will find a complete set of plans and other drawings of the building in the John o' Gaunt Sketch Book, vol. ii., 1876-9.

THE ART OF THE THEATRE.

The spirit of the times must no doubt be more or less faithfully reflected by a stage whose *raison d'être* is to give its patrons what they want. However, that reflection may become a little distorted in course of time. Competition for patronage gives rise to an exaggeration of those wants in the minds of over-zealous servants who not only participate but also create them. This particularly applies to the presentation of Shakespeare's plays. It seems inevitable now that Shakespeare should be staged in the West End of London with the utmost elaboration, and in a fashion which in at least some respects will be held to have eclipsed all previous presentations. Hence there has been a sort of crescendo which is gradually beginning to overpower the mere written play and make it of secondary account. If success be gauged by box-office receipts alone then this method must be accepted without demur. Theatres are, we all know, run to make money, and the only way of accomplishing that is to attract the public. The surest way to attract the public is to give them what they wish to see and are willing to pay to see. Precedent would, therefore, seem the safest guide; and the best motto to be, "the same kind of thing as before, only a little more so." But there ought to be more than one road to financial success if an adventurous pioneer can only find it. And along that road the producer will surely shed his unessentials, his superfluities, one by one. It will need courage to abandon the smooth-trod tracks of established success in order to follow the little known mountain-path of experiment. It would appear as if at least one actor-manager was recently daunted at the prospect of leaving the fertile valleys, for in his latest production he has surpassed his own high record for opulence.

At the Leicester Galleries there has just opened an exhibition of drawings and models for "Macbeth" and other plays by Mr. Edward Gordon Craig, whose name is better known in this country than his work. On the Continent Mr. Craig has gained a considerable reputation for his work in scenic effect and stage arrangements—in proof of which we may mention that he is producing "Hamlet" in November at the Théâtre Artistique of Moscow. In London he has only been connected with some three productions. These "Macbeth" drawings and models were made at Sir Herbert Tree's request for the production at His Majesty's Theatre. The brief foreword to the catalogue in discreetly referring to this fact adds "my only regret is that I found it necessary to withdraw them." It may be presumed that Sir H. Tree wished to curb or soften down Mr. Craig's individuality.

There is no denying that all the drawings show individuality of an almost bewildering kind. Mr. Craig claims to have thought of Shakespeare first and of the actor or actress second. This is just as it should be. Yet it may be humbly wondered if "Mr. Craig" did not come before the actor or even before Shakespeare. None of the drawings are really more than studies, and many of them represent the jotting-down of a momentary idea. All this inevitably tends to illustrate Mr. Craig rather than to illustrate the poet, for it is well-nigh impossible to construct a sentence out of a half-spoken word. Possibly to an actor-manager these sketches may be in the nature of a cable code and convey more than they do to an outsider who lacks the key. Each of the exhibits seems to indicate something personal.

Perhaps Mr. Craig spurns archæology and claims to design his stage-setting with little or no regard for historical correctness. He might defend that attitude by pointing out the poet's own anachronisms. Macbeth's castle figures in most of the drawings; but the like of it was never seen at Inverness during Duncan's reign or at any other period. It is a castle and nothing but a castle, so let that suffice. The first picture (and there is also a model) shows the fateful Duncan with his sons and attendants toiling up the precipitous path to the castle gates at which stands Lady Macbeth. It is evidently the outer gateway in a lofty curtain wall, fortified by a curious perspective of great square towers at close intervals. One possible objection is thus forestalled by a characteristic note in the catalogue: "The obvious thing that the London critic may say is that you cannot get such a height on the actual stage, and the surprising answer is that you cannot—in London. Somehow or other, a sense of space is a thing seldom attempted by anyone in London. . . . In some of the theatres on the Continent they have got past this difficulty, and yet without robbing the actor, the stage manager, and the call-boy of their employments." The wall certainly shows no "jutty, frieze, buttress, nor coign of vantage" on which Banquo noted the temple-haunting martlets. The setting is admittedly most effective; but Act I., Scene 6, lasts only a few minutes, and producers of Shakespeare must be allowed to think of the profit and loss account. Many of the interior scenes show an equal delight in the grand manner constructionally and an equal disregard of the aids to magnificence which no wimpress the audience and win a preliminary round of applause for the scene-painter.

It has been suggested above that the drawings may puzzle the uninitiated. To such people the collection of five or six models will come as a relief. By a clever manipulation of lighting their stage effect is strikingly indicated. It is not our place to question whether they are all practicable. Mr. Craig no doubt believes them to be, and he is a man of practical experience. As Sir H. Beerbohm Tree did not use them for his latest production it would seem as if he did not, although it is more than possible he may consciously or unconsciously have been influenced afterwards by their inspection. One of them shows Act I., Scene 1, "A Desert Place." Conspicuous here is the solitary square monolith in red granite towering above the three witches standing at its rocky foot. This would unquestionably rivet the minds of the audience and dispense with the necessity for aerial witches and other distracting tricks. It is open to doubt whether there is justification for laying Act I., Scene 5, in Lady Macbeth's bedroom. She would scarcely retire there in order to read a letter, nor would she be followed thither by one of the men-servants. In the interior views of the castle Mr. Craig conveys a feeling of huge strength and massiveness which is increased by the absence of any architectural ornament. The walls are generally of great height and very plain, while the doors are high, square openings. In one model—it is of the "Murder Scene"—the arrangement is extremely clever. In fact, that remark applies to almost everything that Mr. Craig shows. Sometimes even it might be wished that he had been a little more ordinary.

The exhibition in the Reynolds Room of the Leicester Galleries contains drawings for several plays besides "Macbeth," but it is on these latter that the most interest fastens.

ILLUSTRATIONS.

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.

This week we have the pleasure of reproducing some of the sketches made on the A.A. excursion last month by Mr. Charles E. Bateman, F.R.I.B.A., President of the Birmingham Architectural Association.

CATHEDRAL SERIES—ELY.—LADY CHAPEL LOOKING EASTWARDS—ARCADING IN LADY CHAPEL.

With these views of the interior of the beautiful Lady chapel we bring to a close our supplementary series of views of Ely Cathedral.

The Tranent School Board (N.B.) recently invited plans and estimates for a school proposed to be erected on the Ormiston Road, Tranent. There were six sets of plans, and after consideration the award has been given to Mr. Peter Whitecross, architect, Prestonpans. The cost is estimated at £5,000. It is understood the work will not be commenced for from six months to a year.

An ordinary meeting of the Council of the Royal Institute of the Architects of Ireland was held on the 4th inst. at 31 South Frederick Street, Dublin. Mr. W. Kaye-Parry, F.R.I.B.A., occupied the chair, and there were also present Messrs. F. Hayes, H. Allberry, A. G. C. Millar, F. G. Hicks, G. P. Sheridan, Lucius O'Callaghan, G. C. Ashlin, and C. A. Owen, Hon. Secretary. The minutes of the ordinary meeting of June 12 and of the special meeting of July 26 were read and signed, and a large amount of correspondence dealt with, including applications for admission to studentship. A report from the Professional Practice Committee in reference to a proposed revision of the schedule of charges was approved and adopted. A vote of condolence with the family of the late Mr. W. H. Hill, of Cork, was passed.

THE AGE OF STONE CIRCLES.

Report to the British Association of the Committee, consisting of Dr. C. H. Read (Chairman), Mr. H. Balfour (Secretary), Lord Avebury, Professor W. Ridgeway, Dr. J. G. Garson, Sir A. J. Evans, Dr. R. Munro, Professor Boyd Dawkins, and Mr. A. L. Lewis, appointed to conduct Explorations with the object of ascertaining the Age of Stone Circles. (Drawn up by the Secretary.)

Excavations were renewed at Avebury Stone Circle in the spring of the present year, and, as in former years, Mr. H. St. G. Gray, Curator of the Taunton Museum, was placed in charge of the work, to conduct the excavations under the general directions of the Committee. In selecting the particular sites most likely to yield important results, the Committee were impressed with the great desirability of conducting excavations in the *fosse* to the east of the causeway, on the opposite side of which cuttings had been made in the fosse in previous years. The owner of this portion of the circle, Captain Jenner, readily gave his permission, but, unfortunately, the strenuous opposition of the occupying tenant caused this scheme to fall through. It is most desirable that thorough exploration of the fosse and causeway should be made at this point, but for the present the matter must remain in abeyance, and this important part of the examination of the earthwork must be postponed, perhaps, for a few years. In consequence of this primary scheme having been rendered abortive, the Committee agreed to extend further the exploration of the S.W. portion of the fosse, and to this the season's work was practically confined. The results obtained have borne out the views based upon the previous excavations, and have strengthened the belief that the monument dates from Neolithic (probably late Neolithic) times. The work has been conducted by Mr. Gray in a very thorough manner, and the records, plans, and photographs form a very complete series of permanent value. Mr. Gray's detailed report is appended, giving a full account of the work done and of the relics found. A detailed statement of accounts of receipts and expenditure is also forwarded. The thanks of the Committee are due to those who have generously responded to an appeal for subscriptions to eke out the grant made by the British Association, the amount collected (a detailed statement of which is appended to the report) being very satisfactory. The Committee wish also to thank Lord Avebury and Captain L. C. D. Jenner for permission to excavate on their property, and the Rev. J. G. Ward, Vicar of Avebury, for assistance rendered in procuring labourers. Captain Jenner also assisted the work by the useful loan of a number of planks, &c.

Although it is unlikely that excavations at Avebury can be renewed next year, the Committee ask to be re-appointed with a view to a complete survey of the Avebury circle and earthworks being made by Mr. Gray, who has already prepared a survey-plan of the S. and S.W. portion. For this it is hoped that a grant of £20 will be made by the Association. This will not cover the expenses, but it is hoped that the sum may be slightly augmented by subscriptions. No perfectly reliable plan of this most important monument exists at present. The balance of the fund collected being allocated by the subscribers to special excavation work for the examination of the *vallum* and the "cove," will not be available for the survey.

The Avebury Excavations, 1911. By H. St. George Gray.

I. *Introductory Remarks.*

Having given a general description of Avebury and its surroundings in the former reports, the present account will be almost confined to the excavations conducted at Avebury from Monday, April 24, till Wednesday, May 10 (the filling-in continuing till Saturday, May 20). It should be stated that all the cuttings so far made are situated on Lord Avebury's property. Not only were the 1911 excavations filled-in this season, but similar work was completed in regard to the explorations of 1908 and 1909. Fencing now encloses these areas, so that in the course of a couple of years nearly all traces of the excavations should be obliterated.

A maximum number of fifteen men was employed this season, sixteen being engaged in 1909, and eleven in 1908. The weather was fairly favourable, not more than eight hours being lost on account of rain during the period of the work. This season we took the necessary precautions, and were not hindered by falls from the sides of the silting as the digging penetrated into the lower strata of the great fosse.

Sectional diagrams of the fosse, &c., were made as the work proceeded, in which the deposits of silting were indicated, as well as the position of every object of importance found. The scale map of the area excavated in 1908 and 1909 has been redrawn to include this season's work. An average section of the southern fosse was given in the 1908 Report (p. 406), and, being fairly representative of the other sections, it will be unnecessary to publish another on the present occasion.

Twenty satisfactory photographs (half-plate) were taken during the season, and these, added to the twenty-two taken in 1909, and sixteen in 1908, not only show the progress and chief featlres of the excavations, but also include general views, together forming a somewhat complete photographic survey of "the Temple" of Avebury.

One of the most interesting features of the 1909 excavations was the discovery of the entrance-causeway of solid chalk, a little to the east of the modern road into Avebury from the south, connecting the Kennet Avenue with the interior of the monument. The causeway proved to be about 24 feet wide, and on its east margin we dug some test trenches and found that the solid chalk gradually receded as if sloping off to meet the upper margin of the walls of the fosse in the form of rough steps, not always well defined.

With these results before them the members of the Committee were anxious to follow up these observations and to excavate the rounded (or squared?) end of the fosse at its termination on the east side of the causeway; and it was felt that being close to the entrance there would be an increased probability of finding a larger number of relics in the silting of the fosse in this position. The silting is not high here, and probably has at no time been under cultivation, so that the labour entailed in re-excavating this part would be proportionately less than in the fosse on the south and south-west of the monument. As stated elsewhere, although Captain Jenner (the owner) was willing that this work should be done, his tenant was found to be bitterly opposed to excavations being carried out under any conditions. Fortunately for archæological field-work, such obstacles do not often present themselves. The disappointment, however, had to be faced, and, pending further negotiations, it was decided that an excavation should be made across the S.W. fosse, on Lord Avebury's property, of greater extent than those made in former years.

II. *General Observations on Cutting VIII., through the S.W. Fosse*, 1911.

This cutting was 30 feet long, and was afterwards extended in the middle 6 feet further west in order that a ledge, or bench, might be cut, upon which the lower strata of silting could be thrown in clearing the bottom of the fosse. The eastern margin of the cutting (in the middle of the silting) was 235 feet in a direct line from the gateway on the western side of the road at the Kennet Avenue entrance, and 98 feet from the middle of the western margin of Cutting I. (1908) across the fosse.

The surface of the silting at the point selected for this year's work was practically level (the variation being less than six inches). It is stated, on the authority of the oldest inhabitants of Avebury, that the whole of the S.W. quarter of the fosse had been cultivated as arable land some sixty years ago, and this would account for the flatness here. As previously stated, it is said by the local people that a quantity of loamy tenacious material had been brought to this part of the fosse, and especially near the high-road from the site of the new bridge across the Kennet stream on the Devizes road.

While the excavations were in progress a large sectional diagram was plotted along the eastern margin of Cutting VIII. Fosse, and continued in a S.W. direction to include the crest of the vallum, the foot of the exterior slope, and the boundary-hedge beyond, and in a N.E. direction to cover the turf-clad counterscarp of the fosse and part of the central plateau, including one of the standing sarsen stones (height 8.5 feet) of the great outer circle. The horizontal distance from the north side of the stone to the north upper margin of the boundary-hedge proved to be 183 feet, and from the middle of the fosse to the crest of the vallum about 78 feet.

This section showed that the central plateau was 12 feet, and the crest of the vallum 31 feet, above the turf level of the fosse. After re-excavating the fosse the bottom was found to be 18.7 feet deep below the surface of the silting on the eastern margin, and consequently 49.7 feet below the crest of the vallum. Supposing that the crest of the vallum was originally about 5 feet higher, the total vertical height from the floor of the fosse to the summit of the embankment could not have been less than 55 feet—probably the largest dimension of the sort obtainable in any prehistoric earthwork in Britain.

Along the line of section on the eastern margin of the cutting a narrow trench (3 feet wide) was dug from the south side of the cutting towards the crest of the vallum, to ascertain the position of the hewn chalk. It was found to run at an angle of 28 degrees for a considerable distance, at a depth of from 1.1 to 1.6 feet below the surface of the turf. This digging was carried far enough to find clear traces of the old turf line under the great vallum, and to reach the solid chalk at a depth of about 2.2 feet below its surface. From this trench and the level of the central plateau, we were able to obtain a fairly accurate estimate of the *original* depth of the fosse, in this part, that is, its depth below the ground level at the time of the construction of Avebury. This estimate gives the depth of 31.5 feet for the fosse in the middle, and a height of about 16 feet for the vallum above the old surface line at the present time; but the original height of the embankment, as previously stated, was undoubtedly greater.

At the close of the excavations we found that on the line of section both the escarp and the counterscarp of the fosse, revealed by the removal of all the silting, had faces inclined at different angles. The following was the inclination of the solid chalk sides:—

Escarp.—Lower 5 feet, inclination 90 degrees; middle 18 feet, 62 degrees; upper part, 28 degrees.

Counterscarp.—Lower 8 feet, inclination 74 degrees; middle 12 feet, 50 degrees; upper part, 28 degrees.

III. *The Excavation of Cutting VIII., Fosse.*

A length of 30 feet of fosse was excavated, but as a considerable batter to the faces of the silting had to be left to avoid any risk of falls, it was only possible to uncover completely a length of 21.5 feet of the floor. Unlike the floor in the former cutting, the bottom was found to be very irregular and far from level. The fosse was deepest along the eastern margin—namely, 18.7 feet below the surface of the silting. It gradually rose as we continued the work of re-excavation westward. The depths of the fosse below the surface of the silting along the western margin of the cutting were*: Maximum, 16.8 feet; minimum (in the south corner), 15.3 feet; in the middle of the fosse, 16.3 feet. The maximum width of the bottom of the fosse was 15 feet at the east end, and the minimum width in the middle about 9.5 feet.

Two sectional diagrams of the floor were made, showing that the levels taken varied to the extent of 2.95 feet, which was very surprising. This may probably be accounted for by the poor quality of the rock, which consisted of a soft, smooth, rotten, pale greenish-grey chalk of the zone of *Rhynchonella Cuvieri.* (The common fossil, *R. Cuvieri*, was found close to the floor.) This poor chalk occurred also in the lowest part of the profile of the fosse, with occasional solid blocks of whiter chalk projecting beyond it, as seen in some of the photographs.

(*To be continued.*)

THE DEVELOPMENT OF BUILDING LAND.†

By John James Done (Fellow).

THE question of the development of building land is one that at the present time occupies a considerable share of public attention. The Finance (1909-10) Act, 1910, and the Housing and Town Planning Act, are the Parliamentary expressions of that public interest.

So far the development of our large towns has been almost entirely the work of individual enterprise, and if the results leave much to be desired, it is a matter of some doubt whether improved methods in one direction will not be dearly purchased by material disadvantages in other directions.

It is not proposed in this paper to deal with the larger question of town planning, which has already been adequately dealt with in this room. There are, however, a number of points in connection with the practical management of building estates which are of interest to members of this institution.

It rarely happens that a surveyor has an opportunity of laying out a new town. It may happen in the case of a seaside resort such as Eastbourne or a "garden city" such as Letchworth.

In such cases the designer has a free hand, and it is possible to produce conditions which are more or less based on the ideal; but the vast majority of towns are much more the products of economical necessities than of aspirations after the ideal. Moreover, a doubt may be permitted as to whether the ideal town is always and necessarily so much superior to the town that has developed on what may be called spontaneous lines. This was impressed on me after spending a week in the deadly monotony of Philadelphia with its broad streets and blocks of buildings laid out in quarter-mile squares, almost like a chess-board, and then proceeding to Providence, Rhode Island, in which the irregular and winding streets had a charm that was certainly lacking in Philadelphia.

When the question is on the largest scale, *i.e.*, when an entirely new town is being planned, many points have to be dealt with that do not arise when a smaller block of suburban land is concerned. Open spaces, parks, and pleasure grounds may be allocated, sites for schools and public buildings, and for the sanitary requirements of the intended town may be satisfactorily arranged, and other matters may be dealt with that in the case of suburbs, when the land is held by numerous owners, can only be carried out by a public authority. Sites for public worship have also to be considered, but these are not always easy of arrangement. They are undoubtedly a necessity, but many people who use them do not always care to live too near them. Many years ago a deputation from a certain religious community came to me to ask for a site for a chapel, and laid great stress on the advantages of having one on the estate as being an attraction to their co-religionists. Some time after, having a house to let on the estate, and knowing that a member of that deputation was looking for such a house, I sent him particulars. It actually adjoined the chapel, and he replied with charming naïveté that the house would not suit him because it was "too near." I believe that erection of the chapel has attracted members of that community to the neighbourhood, but they have all been careful to live off the estate where it was built.

The question of provision of such sites can only be dealt with satisfactorily by each body buying what it requires. Voltaire, after his visit to England, described it as a country of a hundred religions and one sauce, and if anyone tried the experiment of free sites for religious bodies he would be able to rely on each of the hundred promptly appearing; an interesting object lesson in the divagations of theological opinion in England.

A point that has to be carefully guarded against is the conversion of a site originally granted for public worship to secular purposes, and I am inclined to think the only real safeguard is to refuse to sell the freehold, but to grant a long lease, such as 999 years.

At the same time these bodies perform an important and valuable public service, and the real question is how far they can reasonably be assisted. In this respect there is a wide difference between the leading denominations with their admirable organisations and small bodies that may dissolve in the course of a generation.

As to the class of house which may be erected, a sole owner has, of course, much more control than one who owns a field or even a farm in the suburbs; but owners are all alike in this, that they are more or less dependent on the demand. It is useless building houses of a better class than is required. It only means two, three or four families in a house. One often hears complaints that a better class of house is not built, but if people don't want them and won't pay for them, there is no object in building them.

Whatever be the nature of the estate, large, medium, or small, the first desideratum is an accurate map, on a scale of not less than 44 feet to the inch. This class of surveying is practically the only really high-class land surveying that is left to the ordinary practitioner. To be of any use it must be as accurate as surveying is capable of; but when every care has been taken one is sadly conscious of the limits of surveyors, surveying instruments, paper, and subsequent plotting, when measurements are in inches.

For this reason it is a wise precaution to make a note on the plan attached to a building agreement comprising a number of plots that "all measurements are approximate."

Speaking broadly, therefore, it may be said that the question of building development is that of the management of suburban land; both that which is ripe for building and that which has a prospective building value. There are three stages, each of which has its own problems:—

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* The turf level in the middle of the silting was five inches higher on the east margin than on the west margin of the cutting.

† A Paper read at an Ordinary General Meeting of the Surveyors' Institution.

1. The management and nursing of land growing into building land.
2. The stage of actual development and building.
3. The management of a building estate which has been covered with houses.

It is not proposed in this present paper to touch the last phase of the question at all, as its problems are sufficiently numerous in themselves to demand an evening's discussion.

The management and nursing of land growing into building land is comparatively simple, though all-important. Such land is generally worth more than merely agricultural land. Proximity to a town usually, but by no means always, adds to the agricultural value; but when it is on the immediate edge of the building fringe it is liable to trespass over every part, and frequently becomes next to valueless for that reason; so that as it grows more and more valuable as building land it becomes less and less valuable as agricultural or accommodation land, and when building development begins on an estate it frequently happens that land previously let at 3*l.*, 4*l.*, or 5*l.* per acre has to be let for a merely nominal rent of 1*l.* an acre, or indeed less. Where, however, it is possible to grant a lease of seven years or more, the land not uncommonly commands a high rent for such purposes as sports, and for recreation grounds; but where building is imminent and it is deemed inadvisable to tie the land up for so long a period, all that can be done is to let it for rough grazing or allotments, or some such purpose.

As regards allotments, it is well to enter a caveat; because if the land is let for that purpose, and is suddenly and urgently required for building, compensation has to be paid to the tenants, and it may well be that that compensation may prove of a most serious nature. For example, to have to compensate the grower of mushrooms when his beds are at full bearing would involve an amount which might in some cases equal the fee simple value of the land. If, therefore, any land is let for allotments it should only be on conditions which have been very thoroughly considered, and which provide for such serious contingencies.

Again, it is at all times necessary with this class of land to keep a sharp look out for encroachments; ditches are quietly filled in by some enterprising building neighbour; lights are opened which may later have a damaging effect, and in many other ways questions are constantly cropping up which are troublesome from their frequency and from their very smallness.

As regards ditches it may be desirable to point out, as it so often forms a subject of controversy, that the owner of the hedge also claims the ditch for its whole width, however wide that may be, and without any limit of four feet or any other number of feet or links. In Middlesex, where the ditches are badly kept, and where the original width is not easily defined, it is usual to allow four feet from the stub of the fence; but there are many cases where a considerably greater width may properly be claimed.

At this stage a building estate is by no means an unmixed joy to its owner, and still less is it so to its owner's agent. It is unprofitable and worrying, and one can only admire the subtle humour of the authors of the immortal Budget who justify their "Undeveloped Land Tax" by pleading that the owners wanted, in what I believe is the classic phrase, "ginger," to induce them to turn it to some profitable uses.

Then, again, it is necessary to keep an eye upon the doings of local or borough authorities, so that in the all-important questions of main drainage, the interests of the estate may be adequately safeguarded, and provided with such means of drainage as are necessary. It is probably needless to say that by cordial co-operation with the surveyor of the authority, it is always possible to render him much and very acceptable assistance, which, except in the rarest of cases, will be reciprocated. Every main drainage scheme, therefore, has to be carefully considered.

Again, questions with adjoining owners have to be worked out, such as the straightening of boundaries, securing through roads, exchanges of land for mutual advantage, and other similar matters.

There are not a few intricate legal questions that frequently arise at this stage. When does a lane become a "new street" is a problem that has for some time puzzled the lawyers, and the only answer they have arrived at so far is that it is a question of fact in each case.

What right of entry has an owner into a public sewer? For house drains his right is unquestioned; but sometimes if he wishes to open up a building estate, and to discharge his new sewers into an existing sewer, the sewer authorities may object on the ground that their sewers are already overburdened, or on other grounds, and a long and tedious negotiation, with perhaps an appeal to the Local Government Board, may be necessary, though in the meantime the owner may be paying undeveloped land duty as a punishment for keeping his land out of the market.

Further, the Town Planning Act will no doubt throw upon surveyors the task of co-operating with local authorities in order that the wider issues under that Act may be carefully worked out.

If, therefore, there is plenty of work for the surveyor at this stage, it cannot be said that it is of a directly remunerative character, and all parties concerned are no doubt very glad when some direct return is forthcoming.

Sometimes, indeed, after everything has been done to provide for the expected building development, either from what is inelegantly called "a slump," or from the popular demand finding its way into other directions, the estate may hang fire for years to the great loss and disappointment of all concerned.

Assuming, however, that everything has been done to prepare for building, and that the demand exists, the question arises as to the lines on which the estate shall be developed.

It may be said at once that the overmastering problem of building development is finance. It is probable that every acre of land by the time that it has been covered with buildings has required an expenditure of, in round figures, not less than 10,000*l.*, and to raise this money in the cheapest manner possible is the first element of success, and must be so long as this is a competitive business. When it is considered that a great deal, perhaps the majority, of this work is carried on by small builders, it is a matter worthy of note that as a rule the supply of houses is well in advance of the demand.

(To be continued.)

THE ARTIFICIAL LIGHTING OF HOSPITALS.*

No one who has had any insight whatever into the work of modern hospitals could do otherwise than feel the greatest admiration for the splendid service and effective equipment that characterise those institutions; and yet it must be said that models of elegance and hygienic forethought as they are their excellence is usually marred by the engrafting thereon of systems of artificial lighting that would justify a repetition of Miss Nightingale's trenchant observation that "the very first requirement in a hospital is that it should do the sick no harm."

In visiting the principal London and other hospitals I have been keenly struck with the universal want of discrimination in lighting; there is a kind of trade orthodoxy which cherishes certain forms and fittings, and decrees their use often in defiance of common sense. Take, for example, the ubiquitous plain 10-inch opal shape pendant that does duty with equal impertinency in ward, kitchen, operating theatre, corridor, and consulting-room. It would be difficult to find a more irrational, inefficient, and indefensible fitting for most of the purposes to which it is applied, while it can hardly lay claim to be a thing of beauty. The shade affords no protection to the eyes of patients or nurses against the sting of the glowing filament, and from the fact that thousands of cardboard "eye-screens" have been sold to patch up this so-called "shade" for the necessary protection of the eyes of the healthy and vigorous in office and shop, it must be obvious that it is unsuited to a hospital. Again, the shade darkens the ceiling, and, by preventing reflection from its large white surface, practically darkens the room.

Another token of orthodoxy is the swan-neck bracket, which, with its popular form of "shade" that shades nothing, and its bare light, has been described as "nothing less than an instrument of torture." In some hospital wards the brackets have been mercifully placed lower and closer to the walls. Much more might be said to show the need of reform.

It is not so much a question of gas *v.* electric or any other illuminant as that of the art of illumination which regulates the arrangement of the lighting units after they are brought into the room. I do not propose, therefore, to enter into a comparison of the merits of the various lighting media, although some plain statements from one unbiassed by any of the conflicting commercial interests might prove useful.

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* Abstract of a Paper read at the Congress of the Royal Sanitary Institute at Belfast, by Mr. John Darch.

I will only say that whether electricity, coal gas, acetylene, petrol-air gas, or even oil lamps be employed, it should be possible to successfully illuminate every department of a hospital with either.

Light (and in that term radiation both visible and invisible must be included), like any other form of power, may become an agent of destruction or a minister of health and blessing precisely in accordance with the wisdom shown in its application; and it is the duty of the professional adviser, be he architect or engineer, to understand all that pertains thereto before he can pretend to satisfactorily invest his buildings with the instruments of such a force.

There are to be avoided, on the one hand, the evils of glare, and particularly that which, in a ward patient, would enter the lower part of the eye; the evils of excessive brilliancy, of violent contrasts of light and shade, and of the injurious and troublesome rays of heat and actinism; there is also to be avoided the risk of eye strain consequent upon insufficient light or upon the effort to see in the face of misplaced lights. On the other hand, there is to be sought the comfort of a soft and well-diffused light so arranged that vision may be both easy and pleasant, which, after all, is the proper object of lighting.

The value of illumination depends not on the amount of light that is shed throughout a room, but on that which is reflected from visible objects. An essential part, therefore, of any scheme of illumination is the colouring of walls and ceilings, the strength of which must be properly balanced with the amount of light available. Dark colours eat up the light, and are, therefore, wasteful. White ceilings, cornices and friezes not glossy, with pale tinted walls and slightly darker dados, will best serve the hospital and its inmates.

Let us proceed to consider some practical methods of dealing with the subject, and begin with

The Hospital Ward.

The average ward unit—of, say, twenty beds—should be provided with two kinds of illumination, viz. (1) general, and (2) local.

1. The general lighting need be no more than enough to see clearly about the room, say, 0.5 foot-candle.

No sources of light, nor any illuminated surfaces exceeding 0.1 candle-power per square inch (14 c.p. per square foot) should be exposed to the patients' or nurses' eyes; whereas the intrinsic brilliancy of the

Gas mantle averages	30 c.p.	per square inch.
Acetylene flame	40	,, ,,
Electric carbon filament	400	,, ,,
,, metallic ,,	1,000	,, ,,

Direct illumination, therefore, useful enough in the lofty outpatients' hall or elsewhere, is quite unsuited to a hospital ward.

Direct lighting lamps may, however, be used if provided with proper shades, but everything depends upon that word "proper." Glass shades and all transparencies are inadmissible, nor should any partial translucency exceed the above-named limit of brightness, while any shade that is used should effectually screen the eyes without materially darkening the room. If bracket lights are used for general lighting, a half circle shade should be used so as to illuminate the wall. The practical result of all this is a soft all-over illumination which is very pleasing.

High placed ceiling lights will prove equally successful with a carefully calculated shading.

Indirect lighting by means of the inverted electric arc is deservedly gaining favour, but although it would serve well in many parts of a hospital, I could not recommend it for the ward, as the ceiling would be too dazzling for those who have to lie on their backs.

A happy effect may, however, be obtained from indirect lighting, with tungsten or other metallic filament lamps, placed inside a shallow metal bowl, white on the inside. To obtain the best effect they should be hung as low as convenient, nor should the lamp be set too low in the bowl.

Excepting in the winter, artificial lighting is little needed in the ward, for hospital economy favours very early hours, but some sort of subdued lighting is necessary during the night watch all the year round. With gas or acetylene a small burner, shaded, on a bye pass would do. In electric lighting, several expedients have been adopted, but a 2-c.p. shaded lamp is the most economical. An excellent arrangement is indirect lighting from an 8-c.p. lamp in a small bowl. This is employed, for night purposes only, at Tooting Bec Asylum.

2. *Local Lighting.*—The sisters' and nurses' tables should each have a well-shaded lamp, that is adjustable in height, so that any desired intensity may be obtained. A comfortable illumination for reading is 4-foot candles, but 10-foot c. is not too much for some purposes. A good form of shade is a deep cone of dark green opal, with the lamp entirely recessed. A more cheerful form would be one with a rose silk flounce with white lining, deep enough to hide the lamp, and for cleanliness the top should be of white opal glass, and the flounce easily removable.

The patients' lights are best placed one at the head of each bed, hidden in a dark green opal shade and somewhat to the left, so as not to radiate heat on the patient's head, and to avoid gloss in reading. An illumination of four candle feet should be available. This lamp will be useful for examination, and should illuminate the patient's chart. Near this there should be a plug for a hand or standard lamp.

If gas is the lighting medium, a "bijou" inverted mantle similarly shaded would be suitable for both patients and nurses. If acetylene, a small flame burner.

Steadiness is an essential condition of good sanitary illumination, for fluctuation and flicker are not only very disturbing, but may amount to permanent injury. This trouble may arise (*a*) from the glow lamp when used on an alternating current whose frequencies are below, say, 35 per second; (*b*) from an arc lamp when the light varies in intensity and colour, due to unsuitable or impure carbons, or when it "pumps," due to defective feed mechanism; (*c*) from the gas mantle, due to an ill-regulated air supply, accumulated condensation in pipes or the wind from the open windows of the ward; and (*d*) from all flame burners by the two last-mentioned causes.

Gloss is frequently as troublesome as bare lights, and ye the majority of hospital wards have shiny ceilings. Ther should be no difficulty in getting a diffusive or dead surfac as sanitary as that of the objectionable gloss.

The Operating Theatre.

The operating theatre needs good artificial light, and plenty of it, for there is a large proportion of surgical wor done after dark. It should have a separate general illumination with screened lamps over the sinks and sterilizers The ceilings and walls should be completely reflective, an are best lined with close-jointed white glazed tiles or opalite with a little relief in the form of a pale green or grey dado.

The illumination of the operating table is, of course, th leading consideration. The light should approximate to th colour, the perfect diffusion and the high intensity of broa daylight; both the nuisance of overhead heat and the sept risks of dust collection should be avoided, and the fitting and glass employed should be plain, smooth and easi cleansable.

It is important that the lights should not all be clustere together, forming deep and troublesome shadows, nor situated directly over the table to worry the surgeon with th shadows of his own head and hands, or that would necess tate the frequent shifting of the table. Yet these are th arrangements most commonly met with.

Every hospital has its own pattern of operating lig (scarcely two are alike), while many of them are ve curiously contrived. The following may be taken as typic of the more usual arrangements:—

1. One or more plain shade pendants of the common typ sometimes with a dust-raising counterweight and pulley.

2. A cluster of from two to twenty glow lamps under large opal shade.

3. Rectangular trough 4 feet long with opal sides, full lamps, and sometimes with a sheet of opal glass underneat this gives an excellent light, but the heat is intolerable.

4. A four or six light electrolier, each arm with a separa lamp and opal or aluminium bell shades.

Either of the foregoing may depend from the ceiling from the end of long swing brackets. Glow lamps shou have metallic filaments; tungsten is said to give the white light. Gas burners are sometimes attached.

At Charing Cross the drawback of concentration is w met by distributing the light over the long arms of fo brackets and round the gallery front.

The London Hospital and that at Ryde are fitted wi Marshall's operating light, consisting of a fixed centr 100-c.p. lamp under an opal reflector, with four hinged arm each with a 60-c.p. Nernst lamp in a condenser tube proje ing the light to any desired spot.

Electric arc lamps are employed in some continent theatres.

Direct lighting with ordinary arc lamps is out of t question on account of the unavoidable shadows; excepting, perhaps, for general lighting. But where there is a large skylight a splendid direct illumination may be obtained from white flame arc lamps, which have a remarkably high efficiency, and throw most of their light downwards. Four of these may be suspended over, but not too close to, the ceiling light, which should be of clear fluted glass to spread the light. They may be fixed, or may move on rollers worked by cords in the room. Questions of dust and the intrusion of lamp trimmers are thus eliminated.

Indirect arc lighting, particularly where there is no skylight, is eminently suitable. Four 10-ampere open arcs, properly placed and reflecting directly against a white ceiling, would give a brilliant illumination, with all the advantages of daylight.

Professor Siedentopf has invented an ingenious arrangement for lighting the operating table by means of isolated beams of light, which are not only ample but entirely avoid the dust question.

There are two forms of it:—

1. The single, in which a 20 ampere projector, or search light, is placed outside the theatre, and about 7 feet 6 inches high, from which a parallel beam of light is directed through a hole to a small mirror, thence to the table, or through a second mirror to the table. This beam is controlled by an iris diaphragm and smoked glass. It is best suited to the gynecological and throat theatres. It is necessary to have good general lighting.

2. The compound form is more satisfactory. A projector lamp as before, but of 25 to 30 amps, directs the light through an aperture to a thin metal disc, on which are placed small distributing mirrors which divide the main beam into a number of smaller ones, and which are separately projected to receiving mirrors placed around the room. These mirrors re-unite the light on the table in a many-sided form, free from shadows.

Electric fuse wires have a knack of "going" at most inopportune moments, while a breakdown on the part of a supply company is not unknown. It is, therefore, essential to have a reserve for such an emergency. The fusing trouble is more common on branch circuits; one excellent precaution, therefore, will be found in wiring glow lamp fittings from two separate main branches, either of which failing, enough light may be left to work by.

To provide against failures on the main there are two methods:—

1. A gas lamp with an inverted mantle, as at the West London Hospital, which should be lit during operations.

2. An electric accumulator, from which a small emergency lamp should be kept alight during operations, and in connection with which it should be possible to immediately switch on sufficient light from the accumulator to complete an operation. Separate lamps would be required for this purpose unless it would be convenient to have the voltage of the accumulator equal to that of the circuit.

Some hospitals keep oil lamps ready to hand.

Hand and standard electric lamps of a variety of patterns are to be found in every operating theatre.

The Dispensary

is usually the worst served of any department. It is, in London, frequently to be found in the basement or in some other part of the building lacking daylight, while the artificial illumination is commonly so inadequate that it sometimes becomes a difficulty and a worry to read the prescriptions.

A properly shaded light yielding four or five foot candles is required to each man on the dispensing benches. The shelves should be illuminated with screened lights to facilitate visual acuity; in fact, no bare lights should be visible. Undoubtedly, the inverted arc lamp with a white ceiling would afford the best illumination, while the running cost of it should compare favourably with that of glow lamps.

Where is the dispensary or laboratory that provides facilities for reading the graduated measuring glasses? Nothing is more productive of eye strain than the effort to decipher any kind of graduated scale, but with the faint lines of a glass measure in the twilight of the average dispensary held up to a patchwork background of bottles the strain is increased. It would save time and afford comfort if small white screens were fitted up, one in front of each man, adjusted to catch the chief incident rays from a skylight or window at such an angle that they reflected towards the dispenser. The same screen could be used under an artificial light or in a permanently dark situation, or there should be an illuminated panel of either reflected or transmitted light.

ARCHÆOLOGY IN PERU.

A communication presented to the British Association at the Portsmouth meeting, 1911, by Miss A. C. Breton.

In recent years there has been much activity in the field of Peruvian archæology. At Tiahuanaco (which must always be associated with Peru, though now within the borders of Bolivia), M. G. Courtz, of the expedition of MM. Sénéchel Lagrange and de Créqui-Montfort in 1903, excavated the wide monolithic stairway which forms the eastern entrance to the great enclosure called Kalasasaya. He then dug along the western line of monoliths, and found that they were connected by a wall of cut stone. On that side he uncovered the double walls of another enclosure, and to the east he found a smaller one, constructed in similar style to the Kalasasaya, with upright monoliths at almost equal distances from each other, and a connecting wall of smaller squared stones, uncemented. From this wall projected a number of human heads, carved in the round from trachyte, and apparently portraits. Some of them are now in the Museum at La Paz. In 1910 the Bolivian Government had the Puerta del Sol set upright and cemented, and erected a shelter for the many sculptured stones which had been found. An underground chamber of carefully cut and fitted stone, discovered in 1908, is only 1 m. 40 cm. by 1 m. 30 cm. (not including five steps which lead down to it), and 1 m. 83 cm. high. The roof is of flat slabs of andesitic lava. Five colossal statues have been disinterred, of which the larger is 5 m. 72 cm. high. They are covered with finely incised designs. On the breast of one is a figure of the deity represented in the centre of the Puerta del Sol, surrounded in this case by standing personages. Another has several minute faces on its hands, and a face on each finger-nail.

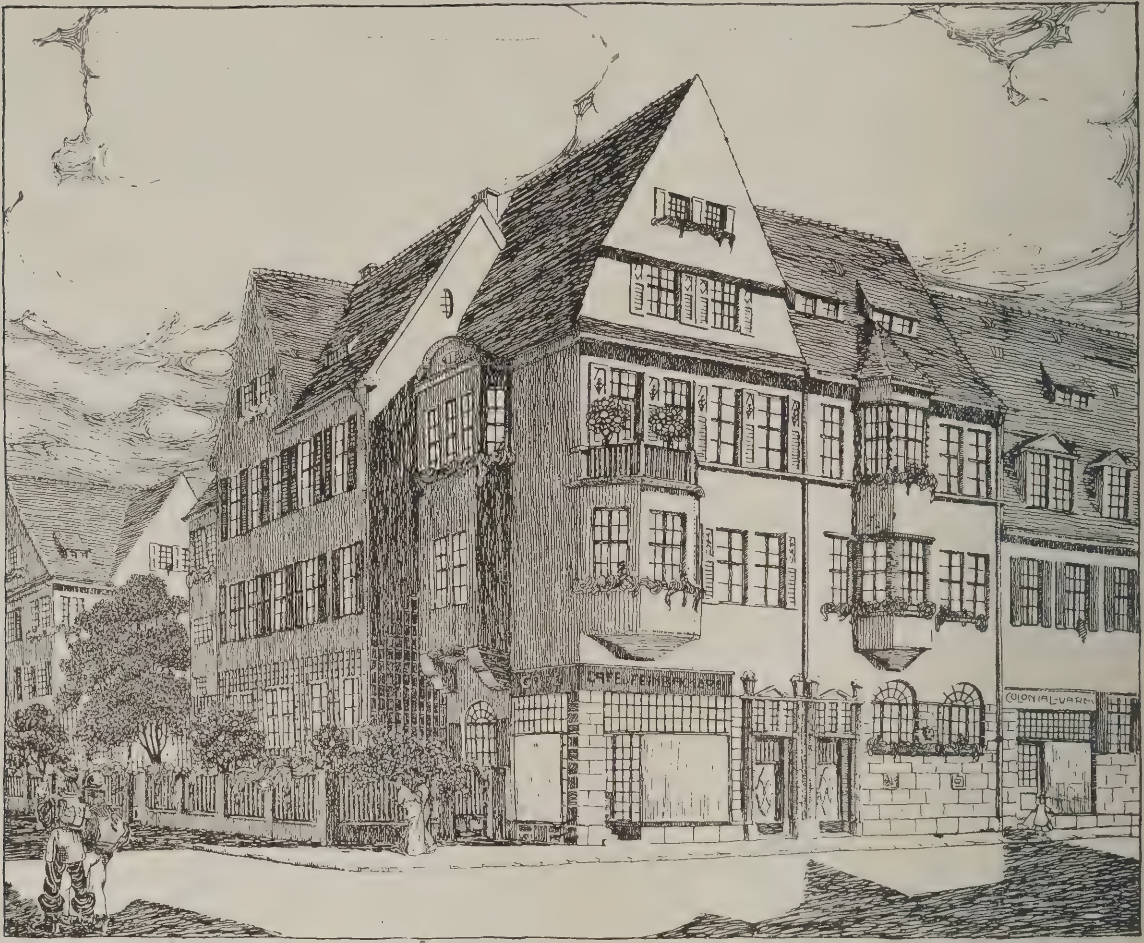
Small portions of the great pyramid-building Ak-kapana can be seen—terrace walls of well-cut stone, but the masses of earth thrown out from the excavation of the centre (the present hollow is said to be more than 300 feet in diameter and 60 feet deep) hide the greater part. At Pumapanku, on the opposite side of the Indian town, a number of huge blocks of stone remain at the edge of the plateau. Although many hundreds of tons of worked stones have been removed from the ruins for different purposes, there is no doubt that systematic excavation, conducted by competent persons, would result in discoveries of the greatest interest. It is a mistake to suppose that because Tiahuanaco is at the altitude of 12,000 feet, the climate is too frigid for comfort. In the middle of winter there the early mornings are cold, and frost may lie in the shade all day, but the sun is hot and the air invigorating. Plentiful crops of barley are gathered, besides the native quinces and potatoes, and the Indians are well nourished and clothed, capable of long journeys with their lamas and other animals. On St. Peter's Day they assemble in thousands to perform their ancient dances in the town square, as described by Squier. A curious feature is that those who wear great feather crowns resembling the tops of palms, after dancing for some hours, place them in the centre of the ring and continue to dance round, bending towards the crowns as if in worship.

The amazing richness of Peru in antiquities is seen in the galleries of the National Museum at Lima, which Dr. Max Uhle has filled with the results of two years' excavation in the region of Nazca, the neighbourhood of Lima, and near Trujillo, all coast civilisations. In the bay of Ancon, the first settlements of primitive fishermen were on the side hills which slope to the sea, where the rocks are covered with shell-fish. Then followed the wide-spreading town which filled the sandy area between sea and mountains, known from Reiss and Stübel's book as the Necropolis of Ancon, but now proved to have been a series of skull heaps and of reed huts, which decayed or were destroyed after the owners had been buried under them with their possessions, when others were built above. The accumulated material covers a space more than a mile square and 30 feet high. The graves are small pits lined with pebbles. Dr. Uhle spent several years in excavating at Pachacamac for the University of Pennsylvania, and has been able to form some idea of the sequence of the different kinds of pottery from his finds there and in other places. The beautiful painted pottery at Jea and Nazca proves to be earlier on the coast than any other, and the primitive fishermen learned the art of vase-painting from the proto-Nazca folk. Richly clothed mummies, feather garments of symbolic design, mosaic ear-plugs, gold and silver cups, and a cuirass covered with small metal plates, are some of the treasures of the Lima Museum.

Of the remoter Stone Age little is yet known in Peru, but chips and scrapers are found in the alluvium on the plain of

MODERN EUROPEAN ARCHITECTURE.

GERMANY.



[From *Moderne Bauformen.*

SKETCH DESIGN FOR A BLOCK OF FLATS AT MUHLHAUSEN.—Herr ALBERT GESSNER, Architect.

Lima, and the deposit with fragments of rude pottery, observed by Darwin, can still be seen on the top of the cliff near Bellavista.

SHERIFF HUTTON CASTLE, YORKS.

AT a visit of the York Archæological Society to this Castle, the ruins of which can be seen from the York and Scarborough railway, between Strensall and Flaxton, Mr. R. B. Cook gave the following historical and descriptive account:—

Although now a deserted ruin, time was when princes held state and nobles met together within its sturdy walls, and not a little of the martial grandeur of mediæval feudal England surrounded the place, as its history and remains alike testify. At the time of Edward the Confessor and William the Conqueror, the Saxon Ligulf held lands at Bulmer and Cornborough in the neighbourhood; and during the reign of Henry I. his successor, Bertram de Bulmer, was a man of importance in the district. The yet more famous son of this man, Sir Bertram de Bulmer, called "Bertram fil Bertram," became High Sheriff of Yorkshire, and founded the Castle at Hutton, afterwards called from the office he held, Sheriff Hutton, in 1140, during the reign of King Stephen; and in the civil wars between that Prince and his cousin, the Empress Maud, the castle was seized for the King by Alan, Earl of Brittany and Richmond. It was, however, restored to Sir Bertram de Bulmer, upon whose death it came into the possession of his son and heir, Sir Henry de Bulmer, Knight, who died without issue, leaving his sister Emma his sole heir, by whose marriage with Geoffrey de Neville, of Horncastle, in the county of Lincoln, the Castle of Sheriff Hutton passed into the ownership of the powerful family of Neville. For more than three hundred years Sheriff Hutton Castle remained in the possession of that celebrated and illustrious family. Ralph de Neville, first Earl of Westmorland, a prominent character in Shakespeare's historical plays of Henry IV. and Henry V., rebuilt the castle early in the 15th century, and his widow Joan, who was a daughter of John of Gaunt, resided at Sheriff Hutton Castle after his death. There is an interesting bequest to this lady in the will of John Morton, Esq., of York, proved October 5, 1431, wherein he bequeaths to that most noble Lady Johanna Countess of Westmorland "unum librum de Anglico vocatum Gower." This of course is a copy of the English works of the poet Gower, and seeing that he is reputed to have belonged to the ancient family of Gower of Stittenham hard by Sheriff Hutton, the occurrence of this bequest to the Lady of Sheriff Hutton Castle is of peculiar interest. Another most interesting will registered at York is that of Richard Earl of Salisbury, eldest son of this Lady Johanna and Ralph Neville, Earl of Westmorland. It is dated May 10, 1459, and 37th Henry VI., and contains a clause:

"I will that my feoffees stand seized of my Castle and Manors of Sheriff Hutton, East Lilling, West Lilling, and Raskelf to the use of my wife, Alesia, during her life, and afterwards the same to remain to Richard, my eldest born son."

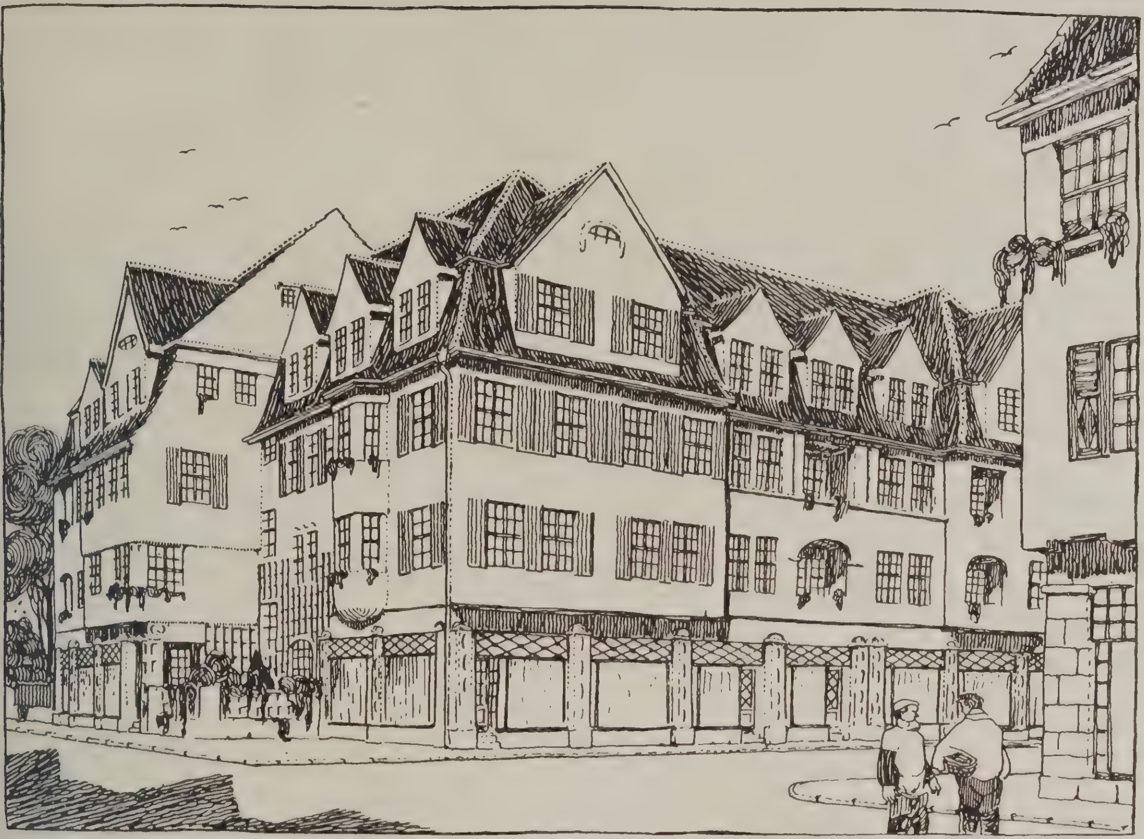
Now this Richard was the greatest Englishman of mediæval days, being no other than the powerful Richard Neville, Earl of Warwick, the renowned "King Maker" and "Last of the Barons" celebrated in Lytton's enchanting romance, who was for some time constable, and afterwards owner of the castle.

A Gift to Richard, Duke of Gloucester.

After the death of that powerful noble at Barnet, in 1471, Edward IV. seized Sheriff Hutton Castle and gave it to his brother Richard, Duke of Gloucester, who subsequently married Ann, the daughter of Warwick, and after deeds of treachery and murder ascended the throne as Richard III. By him Anthony Woodville, Earl of Rivers, was sent a prisoner to Sheriff Hutton Castle, whence he was removed to Pontefract Castle and there beheaded. Several of the cruel usurper's letters, dated from Sheriff Hutton, remain to this day. After he had ascended the throne he imprisoned in this castle Edward Plantagenet, Earl of Warwick, the only son of his brother George, Duke of Clarence, then a boy of

MODERN EUROPEAN ARCHITECTURE.

GERMANY.



[From *Moderne Bauformen.*

SKETCH DESIGN FOR PART OF A TOWN PLAN AT WILHELMSHAVEN.—Herr ALBERT GESSNER, Architect.

fteen years of age, and also his niece, the Princess Elizaeth, eldest daughter of Edward IV. When a term was at ength put to the life of the infamous usurper on Bosworth ield, in 1485, and Henry Earl of Richmond gained both a ingdom and a crown, the youthful maiden exchanged her rison cell for a throne by becoming the wife of the conueror, and so uniting once and for ever the rival Houses of ork and Lancaster.

> Let Richmond and Elizabeth,
> The true succeeders of each royal house,
> By God's fair ordinance conjoin together.
> Shakespeare's "Richard III."

But the event which set free the Princess Elizabeth from he walls of Sheriff Hutton Castle, and raised her to the hrone of England, did not, alas, deliver her hapless cousin, he young Warwick, from prison. Henry Tudor was too oldly politic to allow the last male heir of the Plantagenets is liberty; and although the very day after the victory f Bosworth he despatched Sir Robert Willoughby to take he young prince from the charge of his keepers at Sheriff Iutton Castle, it was only to have him conveyed privately the Tower of London, where, after fourteen years' mprisonment, he was cruelly beheaded on November 26, 499.

Residence of the Hero of Flodden.

For some time after his accession Henry VII. did not sit ery securely upon the throne. During the time of the nsurrections in the north, while the King held possession f Sheriff Hutton Castle, he sent Thomas Howard, Earl of urrey, the hero of Flodden, and afterwards Duke of Norfolk, quell the insurgents; and that nobleman resided at Sheriff Iutton Castle between 1490 and 1500, as well as at intervals n after years, during which time the old castle was the cene of great festivity. John Skelton, the poet laureate of he time, has left us a record of the beauty and fashion of he period which were wont to assemble within its walls in is curious poem of "The Crowne of Lawrell," the scene of hich is laid at Sheriff Hutton, in the Forest of Galtres, bout the year 1520. In this poem Skelton describes himself s falling into a slumber while musing in the neighbourhood f the Castle. He then sees the Queen of Fame in converse with a "Goddesse immortall," Dame Pallas, as to his merits to be crowned with laurel. After Gower, Chaucer, and others have testified to the merits of the poet, he is conducted into the stately hall of Sheriff Hutton Castle, where sate the noble Countess of Surrey in a chair, surrounded by a bevy of fair ladies, whom she thus addresses:—

> Come forth gentilwomen I pray you, she said,
> I have contryved for you a goodly warke,
> And who can work best now shalbe assayd.
> A cronell of laurell with verdures light and larke
> I have devised for Skelton my clerke.
> For to his service I have such regard
> That of our bounty we wyll hym rewarde.

And so the fair "bevy" set to work and weave the laurel crown for the poet, who in return addresses each one of them with a stanza in her praise. The names of the ladies so addressed are: The Right Noble Countess of Surrey, my Lady Elizabeth Howard, my Lady Myrrial Howard, my Lady Anne Dakers of the South, Mrs. Margary Wentworth, Mrs. Margaret Tylney, Mrs. Jane Blenner Haiset, Mrs. Isabel Pennell, Mrs. Margaret Hussey, Mrs. Gertrude Statham, and Mrs. Isabell Knight. Poor ladies; with their "saumplers," and laces, and weaving frames, and the delicate work they wrought. "With fingers smale, and handes as white as mylke, where be they now?" Poor vain poet, too! The scene where thou dreamt thy vain dream is changed. The Forest of Galtres, the stately hall of the castle, and the admiring bevy of fair ladies have all passed away, and only ruined walls and an archaic poem still remain as relics of those bygone scenes.

When the Castle was in its Glory.

The old Duke of Norfolk, who had received a grant of the castle for life, died in 1524, and then Sheriff Hutton Castle reverted to the Crown. In the following year it became the residence of Henry Fitzroy, Duke of Richmond (natural son of Henry VIII., by Lady Tailbois, daughter of Sir John Blount, and widow of Sir Gilbert Tailbois). The young Duke, though only six years of age, was appointed by his father Lieutenant-General of the North and Warden of the Scottish Marches. He was attended by a Council to assist him in the administration of affairs, and by the persons appointed to superintend his education. Several letters of the Council, dated from Sheriff Hutton Castle, are still extant, and in the British Museum is still preserved one in the boy Duke's own handwriting to his Royal father, dated Sheriff Hutton, November, 1529, thanking the King for the care he had taken of his education, and promising all attention and diligence in the same. The young Duke, who died before he attained manhood, is supposed to have left Sheriff Hutton in the year 1530. The castle was then in its glory, and the following description of it is given by Leland, who wrote soon after that time:—

"The Castelle of Sherhuten as I lernid there was buildid by Rafe Neville of Raby the fyrst Earl of Westmerland of the Nevilles, and I hard that in his Tyme he buildid or greatly augmentid or repairid 3 Castelles by side.

"There is a Base Court with Houses of Office afore the entering of the Castelle.

"The Castelle self in the Front is not dichid, but it stondith in loco utcunque edito.

"I markid yn the fore Front of the first Area of the Castelle self 3 great and high Toures, of the which the Gate House was the Midle. In the secunde Area ther be a 5 or 6 Toures, and the stately Staire up to the Haule is very magnificent, and so is the Haule itself, and al the residew of the House; in so much that I saw no House in the North so like a Princely Logginges.

"I lernid ther that the Stone the Castel was buildid with was fetchid from a Quarre at Terrington a 2 miles of.

"There is a Park by the Castelle.

"This Castel was well maintained by reason that the late Duke of Northfolk lay ther X Yers, and sins then the Duke of Richemond."

Soon after the time of Leland, however, probably during the latter half of the sixteenth century, the castle of Sheriff Hutton must have been dismantled, for a commission of survey reported in 1624 that "the bowels of this worthy pile and defensive house are rent and torn," the "naked carcase" being only then standing. James I. leased the castle, manor, and park to Sir Arthur Ingram, Knight, and when he visited York in 1617 rode out on Monday, April 14, to Sheriff Hutton Park, where he knighted Sir Richard Harper of Derbyshire, Sir John Hepsly, and Sir William Bellasis of Durham. On the following day he left York for Ripon and the North. King James I.'s grant of Sheriff Hutton Castle was afterwards enlarged by Charles I., who gave the same to Sir Thomas Ingram, his heirs and assigns for ever. The castle still belongs to the present representative of that family; but the park was purchased during the reign of Charles II. by Edward Thompson, Esq., whose descendants sold it to the present owner, W. Coates, Esq., about thirty years ago.

The Ruins of To-day.

The ruins of Sheriff Hutton Castle stand upon a gentle eminence facing the village, and are quadrangular in form, with a large open space in the centre, and a lofty square tower at each corner. The principal entrance has been on the east side, where there is a gateway with a pointed arch, above which are four shields of arms in a sunk tablet, each surrounded by a wreath and bearing the plain saltire of the Nevilles. The third shield also bears the Royal arms of England and France in commemoration of the marriage of Ralph Neville, first Earl of Westmorland, with Joan, daughter of John of Gaunt, one of the Royal family of Edward III. It is thought from these armorial bearings that the castle must have been completed some time during the first quarter of the fifteenth century. The four corner towers, though all in a ruined condition, present a very bold and commanding appearance. That nearest the entrance gateway (the south-east tower) is supported outwardly by strong buttresses. In all cases the floors and interior apartments have been demolished; although remains of the circular winding staircases, fireplaces and windows of the various rooms may still be seen. Under each of the south-west and north-east towers is a subterranean chamber measuring about forty feet by twenty feet, the roof arched over with stone; above which, on the ground floor of the castle, is, in each of these towers, an ancient chamber similarly arched over with a vaulted ceiling. The towers approach 100 feet in height, and may be seen from a considerable distance. On the south side of the castle are two oblong moats or double fosses, each about 200 yards in length and six yards wide; but they do not appear to have surrounded the building. Very different are the remains of Sheriff Hutton Castle now to the magnificent building of which Leland wrote. The stately "Staire" and no less stately "Haule" have disappeared. The place where princes lived and noble lords and ladies ofttimes joined in scenes of mirth and festivity is now (sic transit gloria mundi) occupied by stables, cowhouses and barns! The palace has become a farmyard, and when last we visited it the inner area of the castle, once the recreation ground of the great, was filled with corn and hay stacks, and a noisy thrashing machine told of the farmer's preparation for rent day. But, however much we may regret the apparent neglect which seems to reign around, to those who love to visit scenes famous in past history, the old castle will always be an object of interest, and the pleasant walk of a little over two miles which leads from the station of Flaxton through the picturesque park of Sheriff Hutton to this venerable relic of ancient days will add an extra charm to the pleasure of all who pay a visit to the remains of Sheriff Hutton Castle.

OUR CONTEMPORARIES FROM OVERSEAS.

THE *American Architect* (New York) illustrates some buildings by Messrs. Frank Miles Day & Brother; also by the same firm in conjunction with Mr. Klander, a successful competition design for Synagogue Adath Jeshurum, Philadelphia; a reredos in Trinity Church, Wilmington; and a branch library of the Philadelphia Free Library. The Second Congregational church and schools, Lynn, Mass., by Messrs. Nelson & Van Wagenen, associated with Mr. George H. Breed as architect, are also illustrated.

The *Architectural Record* (New York) issues a special Pittsburg number, in which separate chapters are given to the terrain and the rivers; the business quarter and commercial buildings; a real civic centre; the modern auditorium church and the homes of Pittsburg. There are also included in the number letters of Stanford White to Augustus Saint-Gaudens.

La Construction Moderne (Paris) contains a description and illustrations, including plans, of a hotel at Roubaix, of which Mons. Bruno Pelissier is the architect. There are also illustrated some blocks of workmen's dwellings designed by Mons. Georges Vaudoyer.

Deutsche Bauzeitung (Berlin) concludes its account of the buildings at the International Health Exhibition at Dresden, and has an illustrated article on Raphael as an architect. The interior treatment of the cathedral church of St. Peter at Bautzen by Professor Fritz Schumacher is described and illustrated, as also is the town hospital of Rixdorf, near Buckow, of which Stadtbaurat Reinhold Kiehl is the architect.

Het Huis (Amsterdam) has illustrated articles on the Waag at Hoorn, and on copper work from Java and Sumatra in the ethnological museum at Rotterdam.

Moderne Bauformen (Stuttgart) has for its principal items illustrations of the new Schloss Rheinweiler at Baden, by Ernst Haiger, of Munich; of several buildings by Schlösser and Weirether, of Stuttgart; and some charming reproductions of water-colour drawings of internal decoration by the Brüder Ludwig, of Munich. A number of small houses by Professor Heinrich Metzendorf show considerable picturesque originality.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

St. Mary's Church, Great Milton, Oxon.

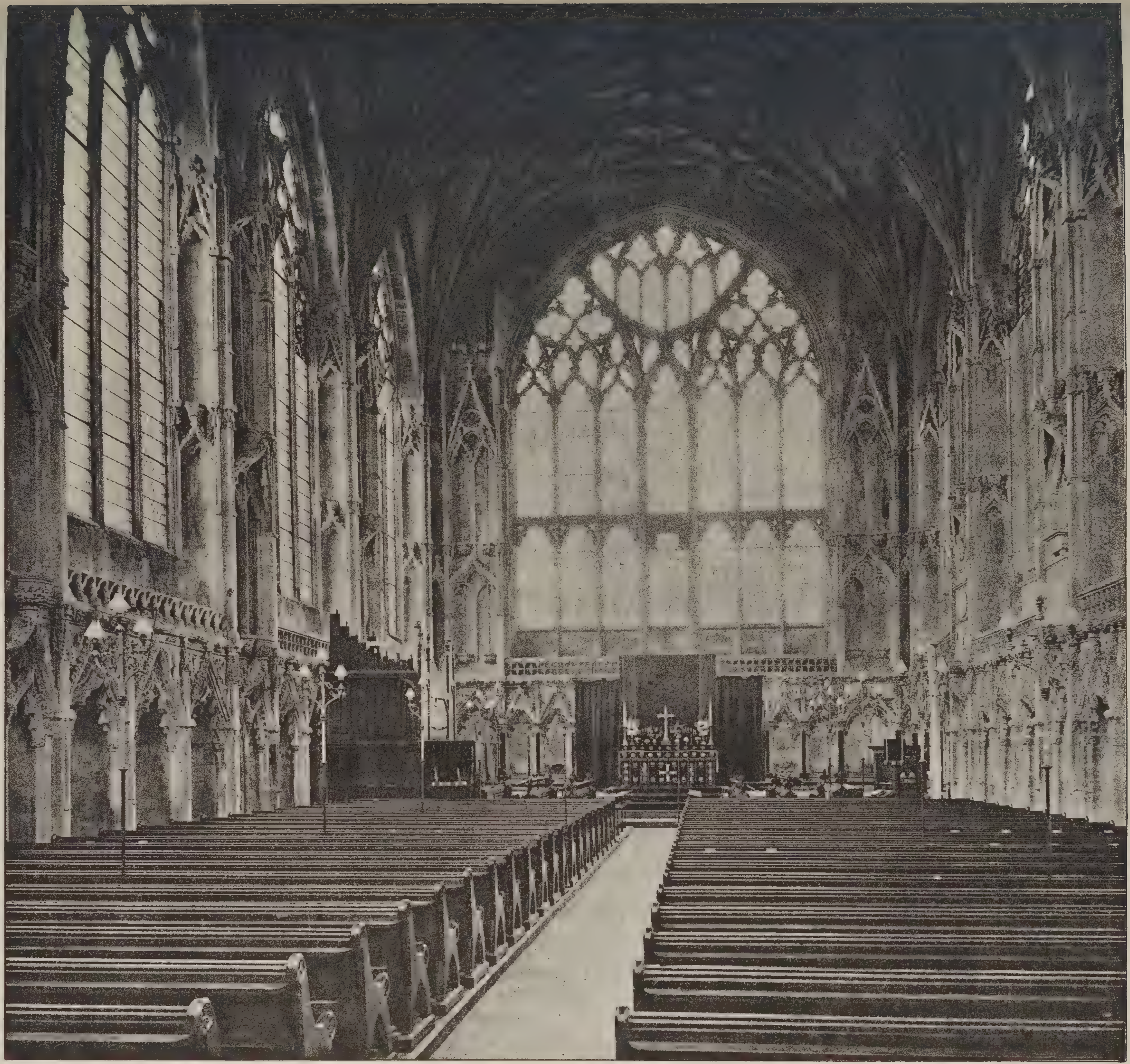
SIR,—Could you, through your paper, kindly inform me if there is any book which gives a sketch-plan and view of St. Mary's Church, Great Milton, Oxon? If this would not be too much trouble it would greatly oblige me.—I remain, Sir, yours faithfully,

W. A. MALONE.

Fortwilliam Park, Belfast: September 4, 1911.

A NEW building is to be erected at a cost of £200,000 for the Montefiore Home for Incurables and Chronic Diseases, New York.

PLANS for the construction of a reading room in the village of Kilburn, near Thirsk, have been passed by the Ecclesiastical Commissioners.



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CATHEDRAL SERIES. No. 682.—ELY: LADY CHAPEL. EASTWARDS.

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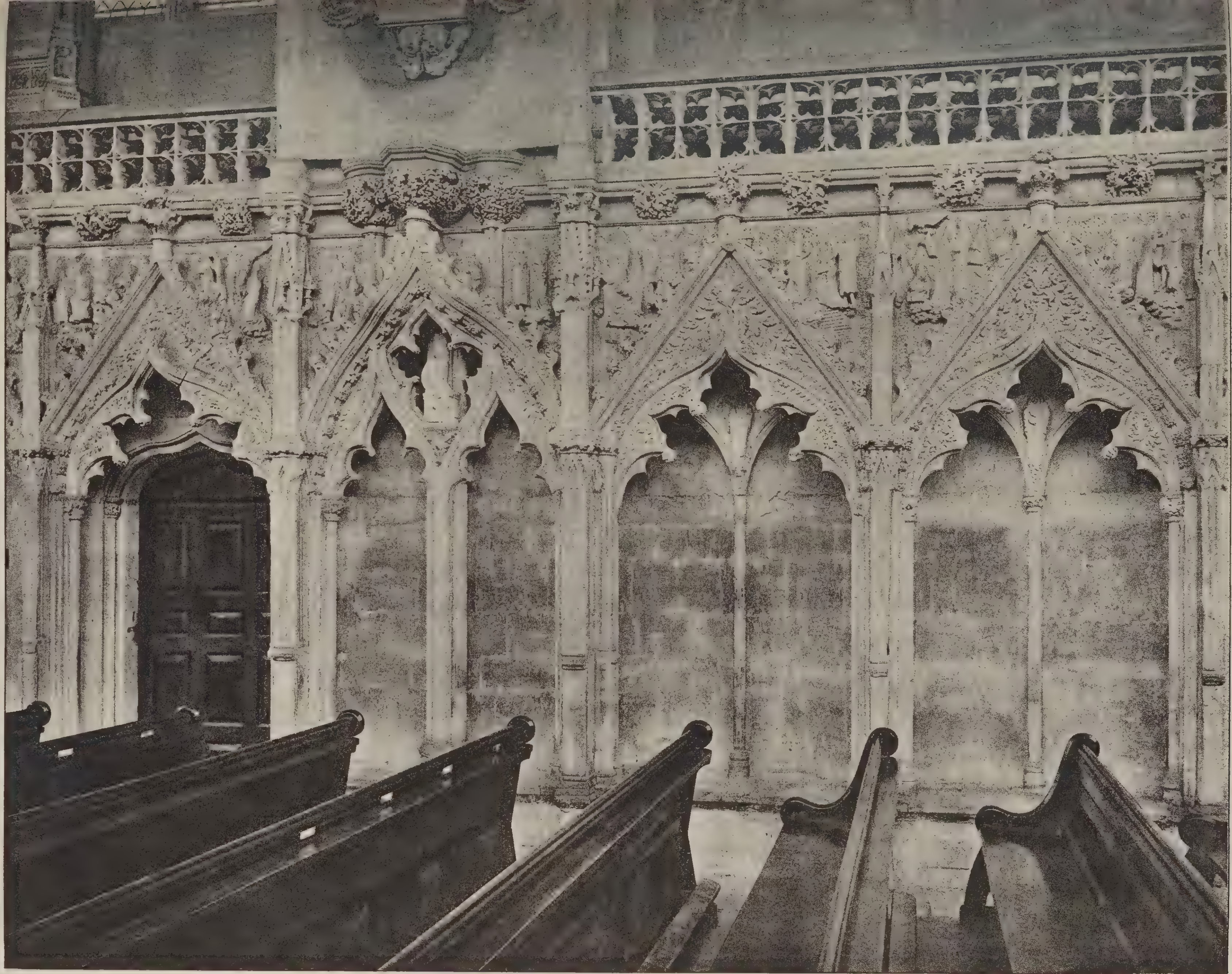

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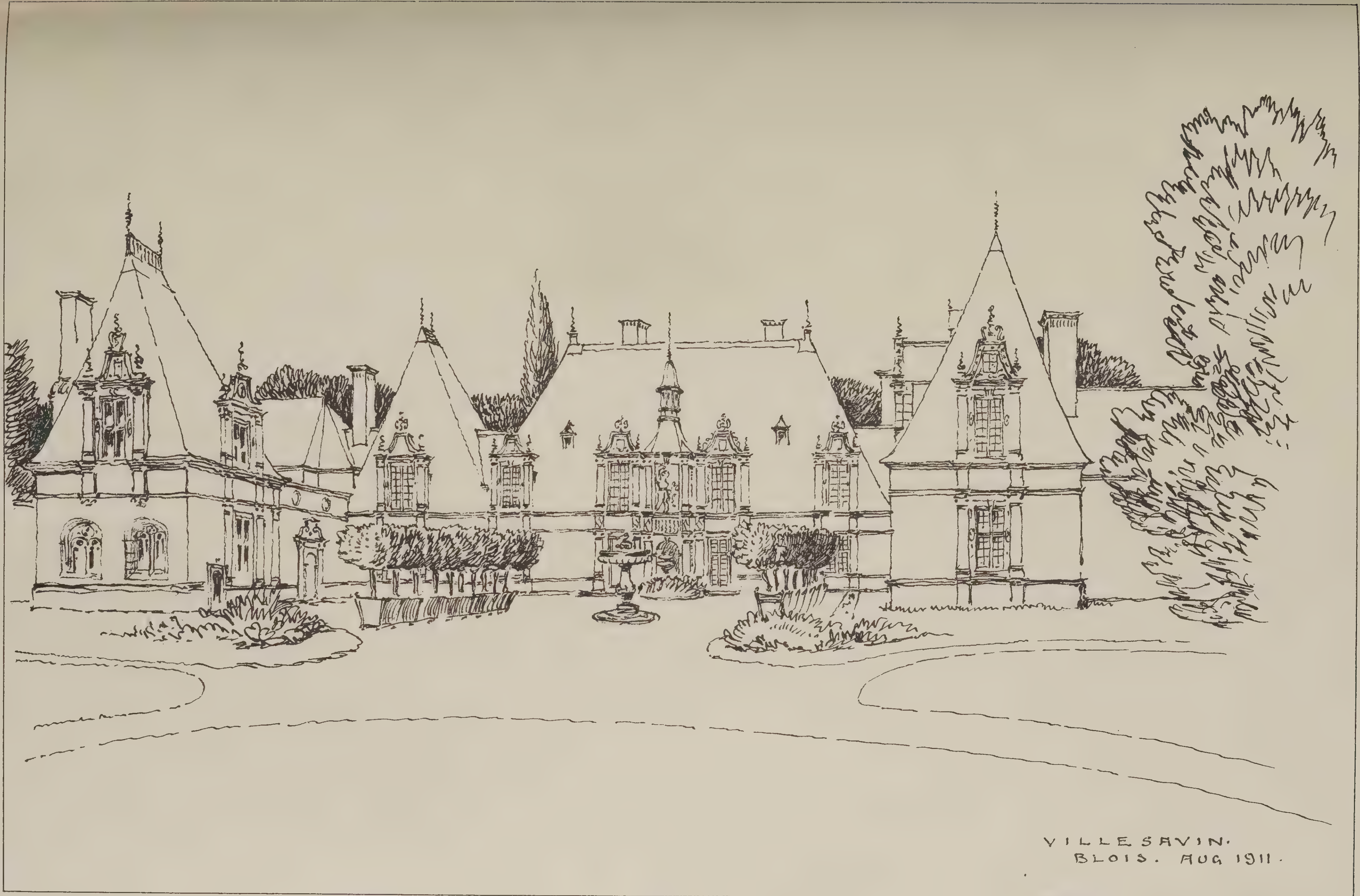

VILLESAVIN.
BLOIS. AUG 1911.

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SKETCHES BY Mr. CHARLES E. BATEMAN, F.R.I.B.A.

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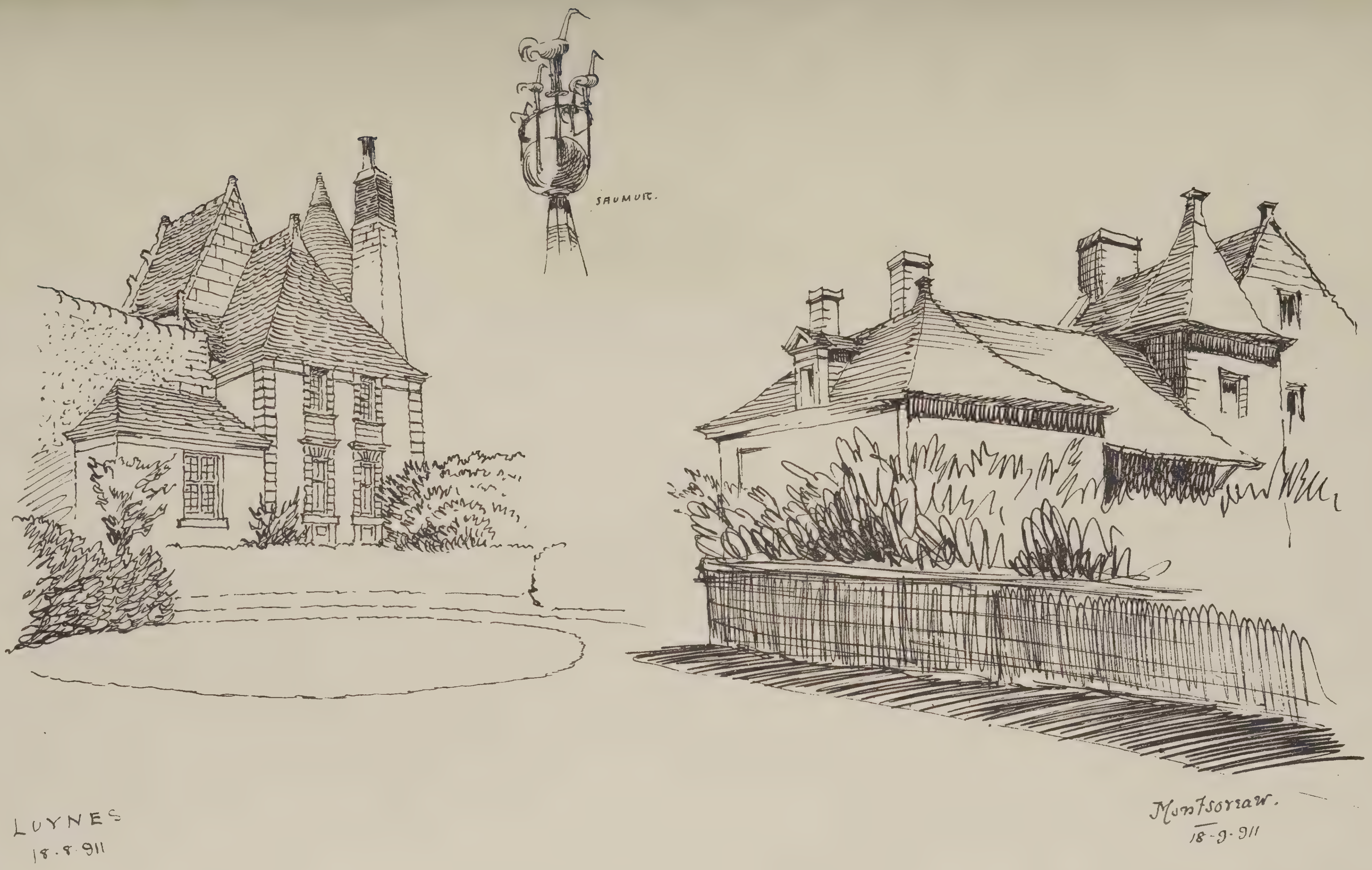

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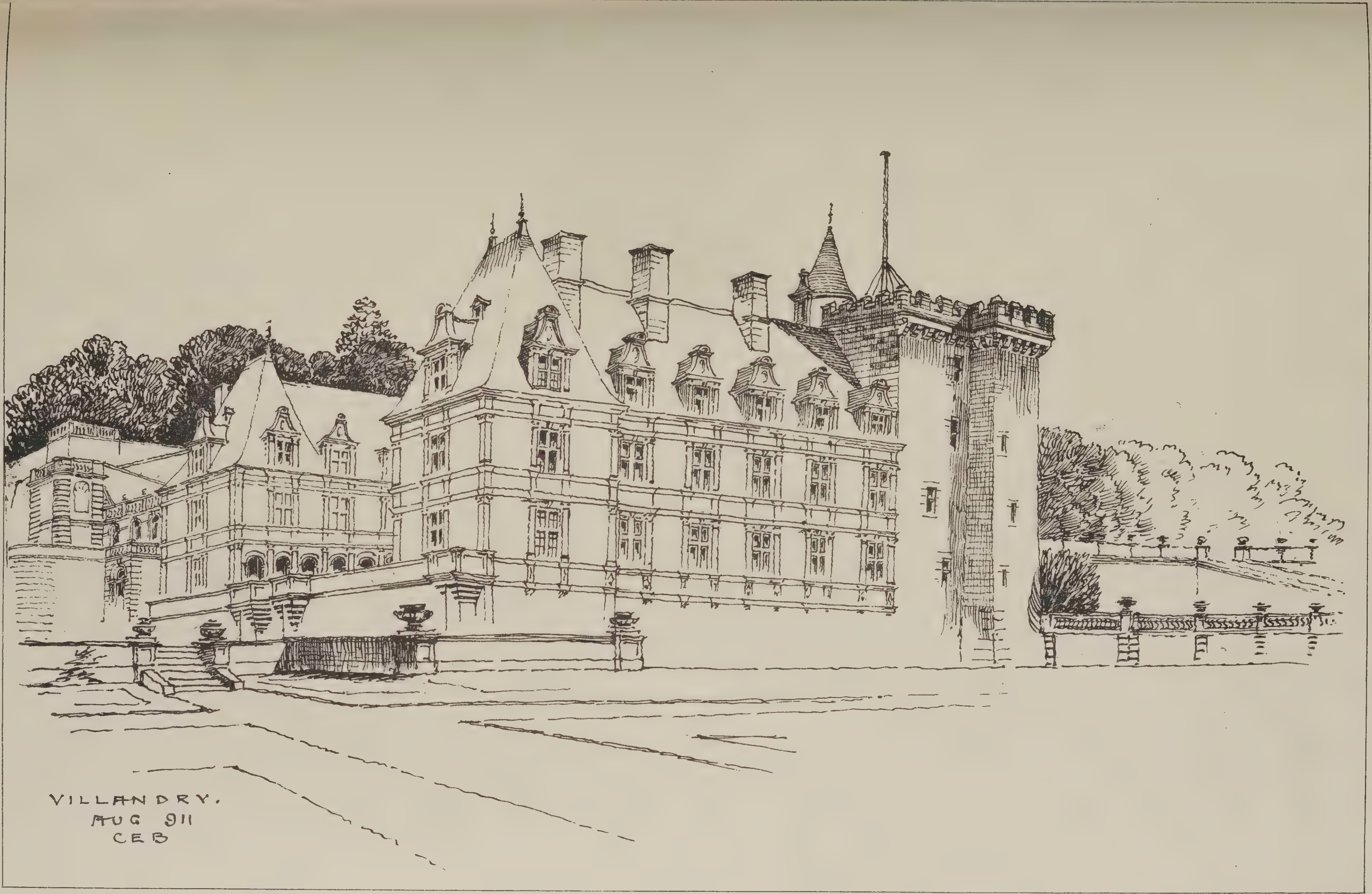

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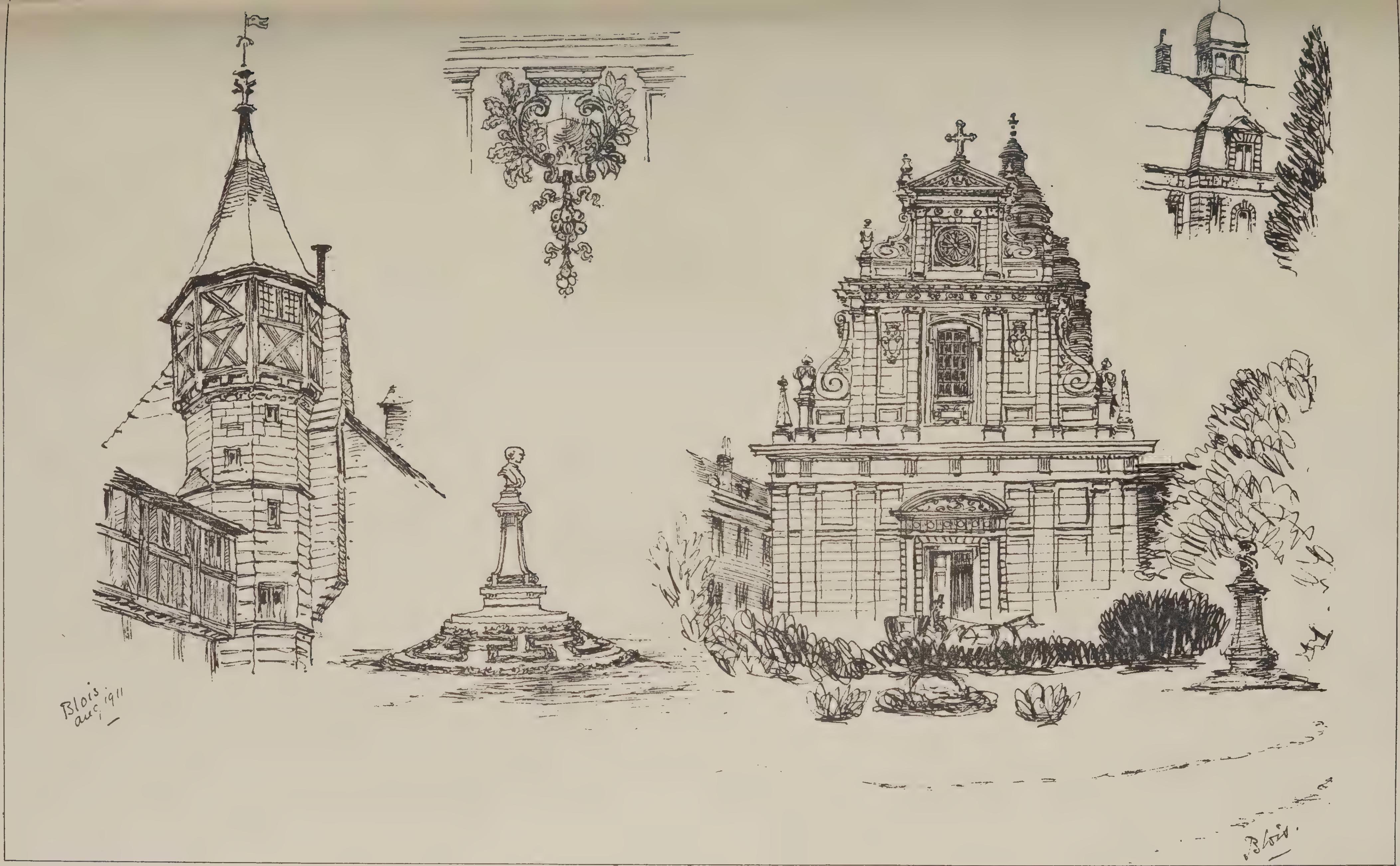

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The Architect.

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FORTHCOMING EVENTS.

Wednesday, September 20.

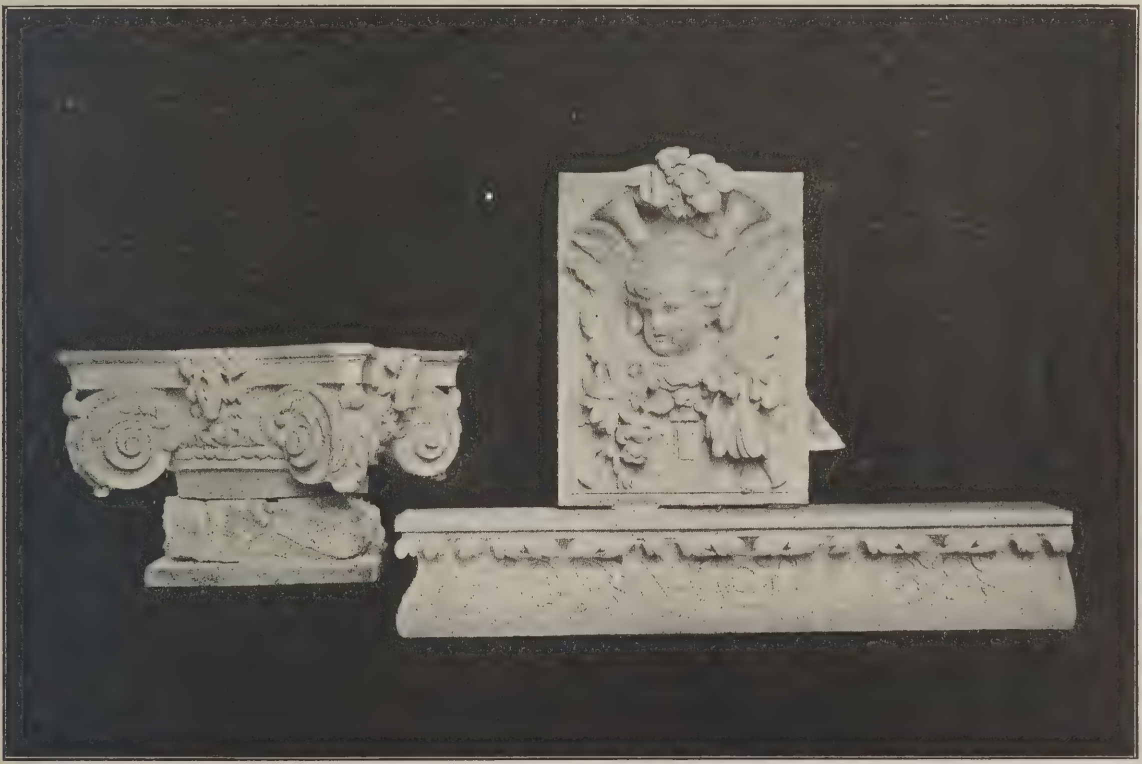
Institute of Metals: Annual Autumn Meeting at Newcastle-on-Tyne (three days.)

Friday, September 22.

Institution of Municipal and County Engineers: Eastern District Meeting at Gidea Park, Squirrels Heath, and Visit to Romford Garden Suburb.

Saturday, September 23.

Architectural Association: Camera, Sketch, and Debate Club Visit to City Churches (London).



SPECIMENS OF WORK DONE IN THE STONE-CARVERS' SHOP, TRADES' TRAINING SCHOOLS.

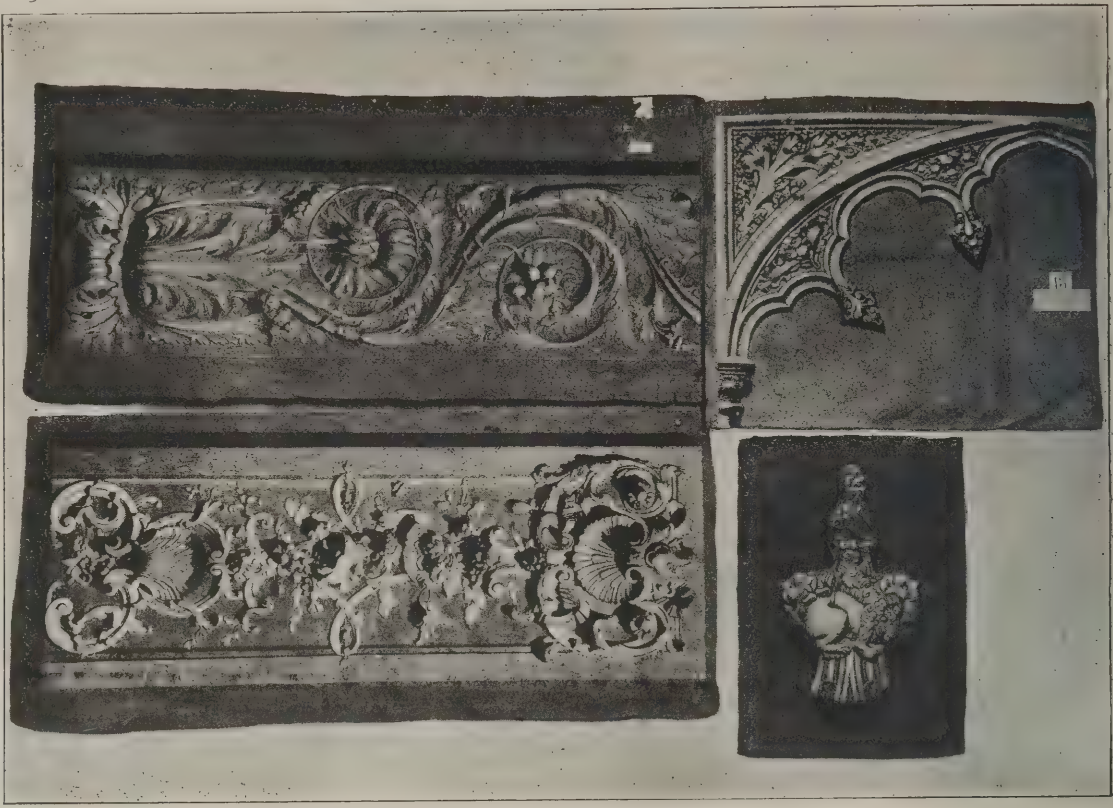
TRADES' TRAINING SCHOOLS.

THAT the good work done in the past at the Trades' Training Schools maintained at Great Titchfield Street, London, by the Worshipful Companies of Carpenters, Joiners, Painter Stainers, Plaisterers, Tylers and Bricklayers, and Wheelwrights, is still being continued is evident from the annual report, which has just been issued.

It is also gratifying to find that, even in these days of socialistic trade-unionist principles, when levelling down to the capacity of the inferior workman is sought, there are more than two hundred young craftsmen possessed of ambition to improve their powers in the particular occupation by which they earn their living. For it is a peculiar feature of these Schools that admission is restricted to those actually engaged in the trade for which instruction is given. The Worshipful Companies of the City of London who support these Schools are thus endeavouring to carry out one of the principal objects for which they were originally founded, to maintain a high standard of performance in the trade or craft with which they are associated.

An important feature in the methods adopted in the Trades' Training Schools is that as far as possible the students are allowed to choose their own subjects and make their own designs for the work that they execute. Hence in the speech which Sir Aston Webb addressed to the students after presenting the prizes to the fortunate winners he wisely urged the importance of their endeavouring to impart a sense of beauty to their work in addition to the attainment of mechanical accuracy, which is too often the only goal of the present-day craftsman. The modern workman sees all around him the wonderful accuracy of machine work, and the conscientious joiner and mason endeavour to equal that mechanical accuracy, forgetting that in so doing they are attempting the almost impossible, which, if they achieved, would but reduce them to the level of a brainless machine and be an abandonment of their superiority to the machine, the power to think and to express thought and feeling.

Accurate craftsmanship is admittedly desirable to the extent that it is necessary for the proper performance of the functions for which an object is made. Doors that will not shut and windows that will not open, however much endeavour may be spent on their design, are not good craftsmanship, and therefore not truly beautiful, for fitness is an element of beauty, though not its finality. But there is a vast difference between the accuracy that is necessary for fitness and that of a machine-tool, and within this difference lies the artist-workman's opportunity for imbuing his work with a sense of beauty.



SPECIMENS OF WORK DONE IN THE WOOD-CARVERS' SHOP, TRADES' TRAINING SCHOOLS.

As Sir Aston Webb said to the students, "We all know that this sense of beauty can be given to everything—spoons, forks, tables, chairs, plates, pictures—whatever it is, and if you only keep working with that little touch in mind you will add to its chance of life, which is a very great thing, not only for yourself and your own reputation, but for those people for whom you work."

We are glad to know that in the Trades' Training Schools the possibility of making their work beautiful as well as skilful is urged upon the students, to many of whom it must come with the full force of an entirely novel aspect of their work, for in their daily life, as operative workmen, they must, under our present system of building, be almost entirely engaged in carrying out somebody else's designs, good, bad, or indifferent as the case may be. Then, again, most of the students are naturally young and inexperienced craftsmen, without any training in design, and one might therefore expect that their conceptions would be to a large extent no more than a rechauffé of incongruous elements borrowed from work upon which they had been engaged or which they had seen in the workshops where they have been employed.

From the report of Mr. H. Phillips Fletcher, the Director of the Schools, we gather that whilst advice is given, the students are left with a more or less free hand, and if they do not take the advice they are allowed to make mistakes in design and occasionally in workmanship. Enthusiasm in the class of students who attend these Schools is a sensitive plant, and would be quenched by too much strictness in the teachers; hence the permission of a free hand is wise. Under these circumstances one must not judge too severely the artistic merit of the designs produced, some of which we illustrate.

The trades for which instruction in these Schools is provided are principally those concerned with building, classes being held for carpenters, joiners, masons, bricklayers, painters, plasterers, plumbers, smiths, electrical wiremen, modellers, sculptors and architectural carvers in marble and stone, and wood carvers. There is also a Life Class for modelling, which is an excellent feature, and, we are glad to note, appreciated to the full capacity of the studio, and must be of the highest value to the students of modelling and carving. Besides the trades concerned with building, a class is held for wheelwrights.

Certainly the Worshipful Companies who are supporting these Trades' Training Schools have left nothing undone to ensure their success. The fees are low, in fact nominal; materials, tools, machinery, drawing boards and squares are provided, instruction is given by practical workmen expert in their particular trades, supervised by an architect-director, Mr. H. Phillips Fletcher, and visited by members of the Worshipful Companies. Numerous valuable prizes are given on the award of a committee of judges, including Royal Academicians and others of eminent position.

That the opportunities offered by these Schools bear good fruit is shown by the fact that at the last exhibition in woodwork held by the Worshipful Company of Carpenters, of three gold medals offered two were won by students from the Trades' Training Schools, although the exhibition was open to British subjects throughout the Empire. Numerous other prizes were also obtained in the same exhibition.

Not only are these Schools useful to workmen in the building trades, but architectural students from University and King's Colleges attend at Great Titchfield Street demonstrations in practical work. These are held in the afternoon before the regular work of the Schools commences, and the young architects who attend appreciate these opportunities of observing the methods of the practical craftsman.

NOTES AND COMMENTS.

The curriculum of the Architectural Association has been issued, and we are now able to see the extent of the drastic alteration that has been made in the personnel of the instructors and in the policy of the School of Architecture. For many years past it has been the established practice for the courses of lectures on various subjects to be given by different lecturers, presumably and probably rightly, from a recognition of the fact that most of the gentlemen available were possessed of special knowledge in the subject on which they lectured. Certainly it would be difficult to find anyone better qualified, for

SPECIMEN OF WORK DONE IN THE CARPENTERS' SHOP, TRADES' TRAINING SCHOOLS.

example, to lecture on mediæval architecture than Mr. E. S. Prior, or on hygiene as connected with practical architecture than Mr. R. Stephen Ayling. So with the other instructors; having but one subject with which to deal they have been able to make a hobby of it, and work it up thoroughly, from which their students have gained advantage.

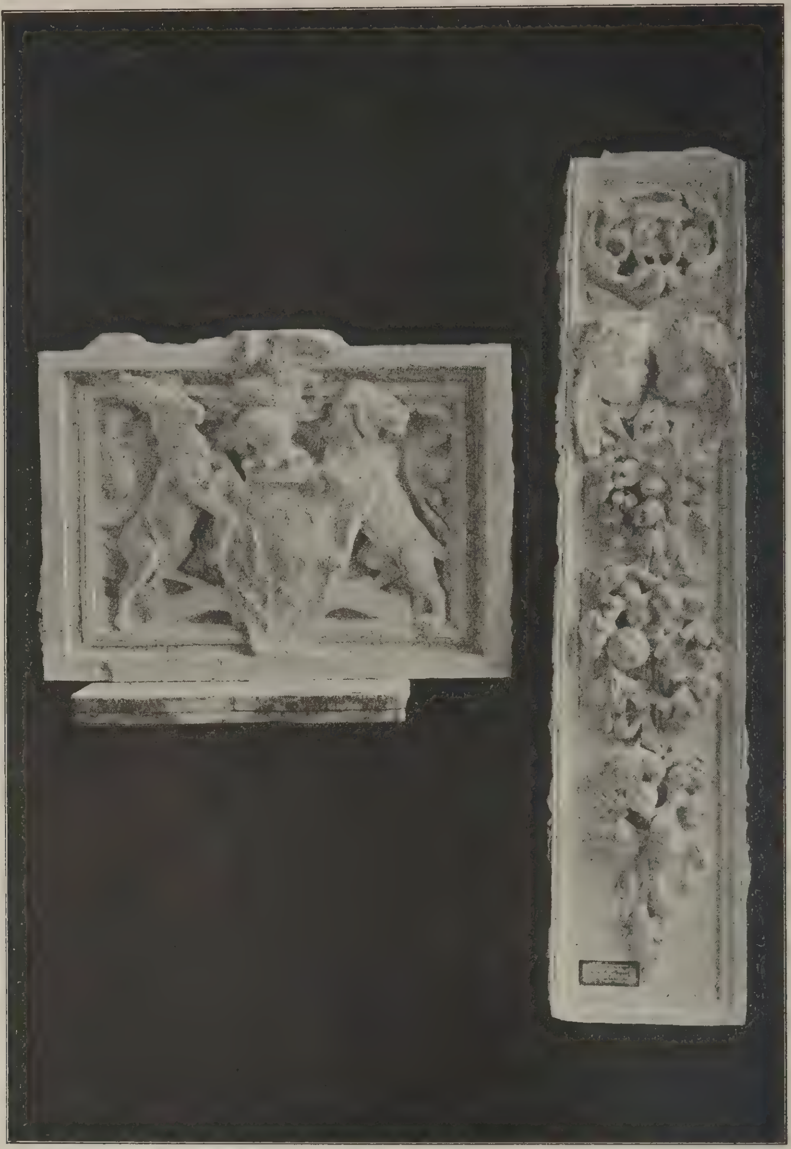
Now, with the exception of a short course on Professional Practice by Mr. A. O. Collard, the whole of the lectures are to be given by two men, Professor Beresford Pite on Architectural History, Mr. C. E. Varndell on Theoretical and Practical Construction. There is a mystic Note on page 15 of the curriculum:—"In the appointment of a Director of Education the Council have in view further developments of the educational work of the Architectural Association, which will, generally speaking, be in advance of the preliminary standard of professional qualification." We are also told that the Association is "in a position which should enable its members to take advantage of the many opportunities now offered for higher architectural studies."

What this all means we do not know. Apparently, the Council are dissatisfied with the way in which the school has been conducted in the past under Mr. Maule, although he has been persuaded, or allowed, to continue his services for another year while the new Director feels his feet. Or perhaps the change of front is merely one of those whimsical ebullitions of which there have been so many in the past few years at the A.A., and which are likely to recur at frequent intervals as long as it is governed by a Council selected for their performances and repute outside the A.A. rather than for experience within it.

It is a curious coincidence that the appointment of Mr. Pite as Director of Education at the A.A. synchronises with the appearance of the Report of the Departmental Committee on the Royal College of Art, where he has been Professor of Architecture since 1900, and one of those members of the staff who "are whole-time officers holding pensionable appointments as members of the established Civil Service." From the report we learn that "The whole-time professors are not debarred from the pursuit of their Art. On the contrary, they receive every encouragement to this, and are furnished with separate studios, and, in the case of the Professor of Architecture, with a room for professional assistants within the College." The Departmental Committee also say, "We desire, however, to point out that we do not think that the advantages of the arrangement are fully obtained if the outside work undertaken by Professors is itself of the nature of teaching or of educational organisation." Apropos of which, we may remind our readers that Professor Pite holds the post of Director of Architecture and Lecturer at the London County Council School of Building at Brixton.

From the report to which we have above referred we gather that it is the feeling of the Departmental Committee with regard to the advanced course given to students who intend to become architects "that if the course is to be continued it is essential that provision should be made, either at the College itself or by arrangement with some Technical School, for the practical study of building construction, of the properties of materials, and of those aspects of engineering and sanitation which are essential to the working architect." We are also told that the committee "are disposed to think that, while a general architectural course such as that arranged for all the College students by Professor Pite ought to be an essential element in the training of professional teachers of art, wherever that is given, the more technical training of architects can better be undertaken, either in a University, as we have suggested, or in some other institution where the constructive and the artistic elements of such a training can be continuously linked together."

We may be pardoned, perhaps, for surmising that the Council of the Architectural Association entertained hopes of becoming the "some other institution" when they concocted the mystic Note we have quoted above, and that they anticipate the abandonment by the Royal College of Art of the "technical training of architects."



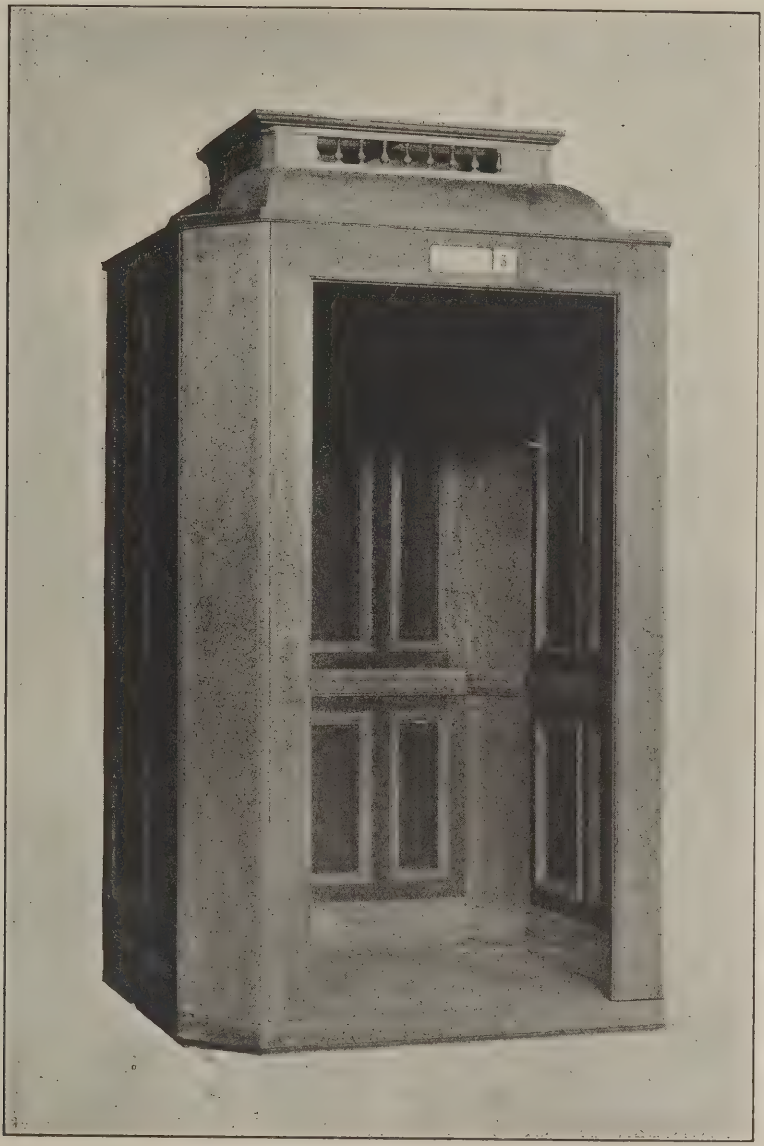
SPECIMENS OF WORK DONE IN THE STONE-CARVERS' SHOP, TRADES' TRAINING SCHOOLS.

Certainly, we think that this abandonment would be justifiable, for amongst the students who left the Royal College from February 1901 to February 1910 only seventeen obtained the Schools Associateship in Architecture, and most of these became art teachers, not architects. No doubt, there are others who have learnt in the Royal College of Art something of architecture that has been of value to them as architects, but their course in the schools has been no more than an incident in their education, and the Royal College of Art cannot flatter itself that it has turned out architects.

It is a good sign that some of the many institutions in London which have professed to supply architectural education for architects are abandoning their pretensions. There are too many schools for architects in London at present, and when King's College has merged its school with that of University College, and the Royal College of Art has parted with its Professor to the Architectural Association, we should like to see many of the Polytechnics follow suit, and drop the very indifferent instruction they now give to architectural students who intend to become architects.

Whether the Council of the Architectural Association are acting wisely in restricting the number of their lecturers is quite another question. There are limits to the knowledge and to the time of every man. Hence, perhaps, the reason why students at the A.A. next session will receive a course of lectures on the Renaissance in architecture, in which French, German, and Spanish work of the period is ignored. Mediæval architecture is restricted to English work. We cannot compliment the new Director of Education at the A.A. on the completeness of a scheme for the teaching of architectural history in which French architecture, both Mediæval and Renaissance, is omitted, nor can we admire the perspicacity of a Council which permits such an emasculated programme to stand as an example of the "further developments" which they "have in view." The curriculum for the ensuing session appears to us a very bad start.

The deficiency in the A.A. curriculum as regards French architecture during the Renaissance is, we are glad to know, to be supplied by the publication this month of a book on "The Architecture of the Renaissance in France," written by Mr. W. H. Ward, M.A., and published by B. T. Batsford. Mr. Ward has, as evidenced by his revelation of the existence of Du Cerceau's original drawings in the British Museum, given, perhaps, more minute study to the history of French architecture between 1495 and 1830 than any other living writer. We say perhaps, because we cannot decide for thoroughness between Mr. Ward and Professor Reginald Blomfield; but of this we feel sure, that no one else knows half as much about the subject as either of these two architects.



SPECIMEN OF WORK DONE IN THE JOINERS' SHOP TRADES' TRAINING SCHOOLS.

THE DEVELOPMENT OF BUILDING LAND.

By John James Done (Fellow).

(Concluded from last week.)

THE methods of dealing with building land are different in different parts of the country.

In London there are, broadly speaking, two ways, viz., the sale of the freehold in plots, and letting on leases for 99 years.

In the north of England a great deal of land is let on a perpetual rent-charge, commonly called a "chief" rent, or failing that on leases for 999 years.

A general account of the various modes of dealing with building land will be found in the Minutes of Evidence of the Select Committee on Town Holdings, which was appointed in 1886 and reported in 1887.

My own experience is almost confined to London and the south of England; for although my earliest professional experience was in the office of a Manchester surveyor, it is, I regret to say, so long since that I have lost nearly all touch with the Manchester practice.

The sale of the freehold in plots has been the method largely carried out by land companies, who purchase the freehold, make the roads, and then sell the plots on what is called "the nine-years' principle," that is to say, one-tenth of the purchase money is paid at the time of sale, and the remaining nine-tenths are paid in nine annual payments, interest being charged on the unliquidated balance; this interest is, I think, almost universally 5 per cent. per annum. The purchaser is usually given a free conveyance if he accepts the title of the vendors without investigation, and almost invariably that is done. The purchaser has, of course, the right to pay up the whole of his instalments before the time named if he chooses to do so, and if he has good luck and sells his houses he does so in order to make a title. He very frequently, however, buys the freehold plots himself and then grants 99-year leases at ground rents which give him a substantial profit on the land, which profit, however, is more apparent than real, because by fixing a high ground rent on the property he not infrequently sells the house at cost price or even in some cases at below cost price, and is content to take the profit on his creation of ground rents.

Although the leasehold system has had its fair share of abuse, it is worth remarking that on estates where the purchasers have the option of taking a lease or buying the freehold they generally prefer the lease to the freehold on account of getting their houses at a considerably reduced outlay in the first instance. On an estate of over 200 houses which has been developed in the last few years, and where the tenants had the option of the freehold or a lease, in only three cases has the freehold been purchased, and in all three cases the premises were trade premises.

The objection to the development of land by selling the freehold in plots is that no one has a sufficient interest in the reversion to exercise control from time to time and to see that the estate is kept up to a proper level; some of the worst property has been built on freehold estates, and the subsequent history has been by no means happy. Undoubtedly, the best estates are those of the large landlords who keep the freehold of the ground in their own hands, and who are able to secure the best after management of the entire property.

In dealing with leasehold estates again there are more methods than one. It sometimes happens, as in the case of corporate bodies, that they have the land but no funds

SPECIMEN OF WORK DONE IN THE PLASTERERS' SHOP, TRADES' TRAINING SCHOOLS.

to develop it, and in such circumstances it is usual to let it in large blocks to a speculator who will make the roads and carry out the whole development of the estate.

The usual method of dealing with a transaction of this kind is that leases are granted by the ground landlord as the houses are roofed in, at ground rents which must not exceed, say, one-sixth of the rack-rental value. Thus, assuming that 10 acres of land are so let, that the freehold value of that land is 1,000*l.* per acre, and that the rental value of it on lease is 50*l.* per acre, and that it is possible to build 20 houses per acre of the rack-rental value of 36*l.* each, the speculator would secure 6*l.* on 20 houses, or 120*l.* per acre; but as he is only liable for 50*l.* per acre there is generally a settling up in respect to each acre, that is to say, when he has secured a ground rent of 6*l.* on eight houses, or 48*l.* in all, he is then entitled to a lease of a plot of land which with half the roads and houses already leased will comprise 1 acre. This is granted at a ground rent of 2*l.*, which is about the lowest amount which is worth collecting half-yearly, and which with the 6*l.* secured on each of the eight houses built amounts to the 50*l.* an acre as agreed. The lease of this remaining portion is what is generally called a "residue" or "remainder" lease.

The speculator has thus fourteen more plots on which he can secure 6*l.*, or if he cares to do it on this part of the land, the limitation of one-sixth of the rack-rental value not applying, a higher ground rent than one-sixth of the rack-rental value; but, of course, the higher the ground rent in proportion to the rack-rental value, the fewer the number of years' purchase which he can obtain for these so-called improved ground rents. Generally speaking, an improved or leasehold ground rent sells for about five years' purchase less than a similar freehold ground rent; they are, I believe, largely bought by insurance companies, whose methods of business easily enable them to set by the sinking fund necessary to compensate for a melting or terminable security. Thus, acre by acre, the whole of the 10 acres would be covered.

The profit on a transaction of this kind represents a substantial gross sum, but it has to be remembered that out of this profit the speculator has to recoup himself for his outlay upon roads; and in all probability, unless he is very fortunate, for losses on financing builders, the delay in getting the land covered, during which time he is standing out of interest on his roads; for the peppercorns which he has to grant to the builders, which, however, is partly or wholly covered by the peppercorns which he receives from his ground landlord; and for many other incidental expenses.

The whole question of profit or loss is entirely speculative. If everything goes right he probably makes a handsome profit, but if everything goes wrong he is just as likely to make a substantial loss.

The so-called peppercorn consists, of course, in a rising rent, and on a letting such as that under consideration, the terms would probably be:—

A grass rent for the first year; 100*l.* for the second year; 200*l.* for the third year; 300*l.* for the fourth year; 400*l.* for the fifth year; 500*l.* for the sixth and subsequent years of a 99 years' lease.

In cases where the freeholder makes the roads the *modus operandi* is very similar, the difference being that the ground rent is higher and the balance on the residue lease correspondingly smaller. In such a case as the foregoing, the builder would pay the ground rents as already set out with an addition in each case of 5 per cent. upon the cost of the roads, which may be taken for that class of property, at a rough approximation, at 300*l.* per acre, a figure, however, which it is only right to point out may vary considerably, because the larger the plots the less road-making is required per acre.

Where the ground landlord makes the roads there is this great advantage: he can then deal direct with the builders, and the profits of a middle man are entirely avoided; a better class of builders can be obtained, and these, by improving their ground rents in the manner already indicated, can obviously afford to sell their houses substantially cheaper than builders who pay the full rack-rental value and make no profit out of the land.

There is a third system which is adopted where the ground landlord is prepared to take risks, or where the developer is a speculator who has purchased the land, and that is, to make the roads and to let the land at practically its full value, making liberal advances to the builder as the work proceeds, and giving him some return either in the way of bonus or allowing him to improve upon his ground rent.

It is very desirable that surveyors who have to negotiate so many of these matters should have a general knowledge of the legal principles that are involved in the question of covenants which run with the land. These have been largely developed by lawyers in the last twenty years, and it is useless stipulating for provisions which in the end are held to be non-applicable because they do not run with the land. A general knowledge of covenants which run with the land and those which do not; of the difference between negative and affirmative covenants; of breaches which are continuing, and of those which are prejudiced by the acceptance of ground rent, and so on, are matters which surveyors are constantly being called upon to deal with, and with which, therefore, they should be familiar in a general way.

It is not possible in the limits of a short paper like this to enter upon them more largely. All of us, however, who have the subsequent management of building estates must be impressed with the greatly superior advantages of a lease as compared with the freehold in respect to the subsequent good management of a property.

As regards the laying out of estates, there are a number of points which are well worth consideration.

Road-making itself is a fairly simple matter, because the main lines of a specification are rigidly fixed by by-laws. Nearly every parish has its own pattern of man-holes, and there is very little that can be said of any value on the question of the actual construction.

Personally, I am in favour of making the roads to a high standard in the first place, but here I know there is great difference of opinion. A well-made road which will stand the wear and tear of building prevents an estate from getting into the horrible condition that is not uncommon in the course of the development of a building estate; and, moreover, the subsequent cost of making up by the local authority is substantially less. The increased cost makes itself felt, of course, in increased ground rent, but the difference is negligible, and the advantages in my opinion quite preponderate.

As regards the laying out of roads a few simple principles may be laid down.

First, it is better to have as many roads leading out of main roads as possible. This involves making the roads at right angles to the main roads instead of parallel, as is sometimes done, the parallel roads leading out of other roads which themselves lead out of the main roads.

Secondly, where possible it is better to have the roads running north and south. In that case, every room in every house gets the sun either morning or afternoon, whereas if the roads lie east and west, the rooms looking north never get the sun.

This is a counsel of perfection, and can only be achieved other things being equal; the shape of the estate, such inexorable barriers as railways, the levels of the land, and many other points have to be taken into consideration. Moreover, the position of the public main roads is already fixed and unalterable.

Thirdly, I for one cannot see the serious objection to what are generally called "cul de sacs," though why they should not be called by the equally expressive and more English phrase "dead ends" I do not know. One thing is certain; they are quiet, and quietness in a large town is an immense advantage.

The ideal to be aimed at in all cases is simplicity of planning, giving convenience of access and freedom from acute angles.

Generally speaking, it is better that roads should run down the slope than at right angles to it; where the slope is material, it is very difficult to get the drains from the backs of the houses on the lower side into the sewer in the road.

Our English streets leave much to be desired, but probably no cause has contributed more to this than cast-iron by-laws, which have much to answer for. There seems, however, to be a probability of a more reasonable attitude in this respect being adopted in the near future.

After the roads have been laid out, there are still questions of planning, because it is impossible to provide right angles to every plot.

There is one matter to which personally I have a great objection, and that is, that where there is an acute angle between two parallel roads and the main road we see sometimes the houses set back from the road in steps. This always appears to me to indicate poverty of ideas in planning.

Such is a brief outline of the methods by which the development of land for building has hitherto proceeded in this country.

Perhaps a paper of this kind may not be considered complete unless some reference is made to the revolution which must necessarily result from the special taxes which have been imposed upon this particular industry.

Its authors claim, I believe, that the Finance (1909-10) Act, 1910, will have the effect of stimulating building development. "The clouds we so much dread" may be "big with mercy," and "may break with blessings on our heads," or—they may not; but whatever they do it requires a strong effort of the imagination to see how these proposals can stimulate the development of land. They may, and it is reasonable to suppose they will make owners more than ever disposed to sell or to let, but the building developer will not be any more disposed either to buy or to hire; in all probability he will be quite the reverse.

It would not be becoming in this place to discuss the policy of these special taxes, but we, as surveyors who have to deal with the altered conditions, can very properly consider the nature of the alterations which have been made, and how they will affect our legitimate business.

The feature which appears to me to be of the most serious nature is the exclusion of interest on money paid for land and sunk in road-making and other ways, and I think it is not unfair to state the effect of these new taxes on the land developer as being an income tax at 4*s.* in the £ on an income which he does not receive.

Land development schemes may be roughly divided into three classes: (1) Those resulting in large profits; (2) those resulting in heavy losses (the files of the Bankruptcy Court contain abundant evidence of these); and (3) those resulting in a small profit or loss or neither.

Take as a typical instance of a land development scheme one resulting in neither profit nor loss.

	£
A seaside estate costs	15,000
There is expended on it in sea wall, sewerage, roads, water supply, and other items for which credit would be given under the Finance Act	40,000
Interest has to be paid to bankers during the course of development	37,000
	92,000
When the whole estate has been developed it is found that the proceeds of the sale of it amount to	92,000
Profit	Nil.

It will thus be seen that the result of twenty-six years' working is absolutely nil, which may be described as a disastrous result.

Let us now see how this is treated under the Finance Act:—

		£
Proceeds of sales		92,000
Under the Finance Act credit will be given for	£	
the original cost of the land	15,000	
10 per cent. would be allowed on this	1,500	
	16,500	
Credit capital expenditure as above	40,000	
		56,500
Theoretical increment subject to 20 per cent. duty		35,500
Increment duty payable		7,100
Plus undeveloped land tax in the meantime		—

It will thus be seen that on a transaction extending over the better part of a man's business life he not only has spent the whole of his time for no reward, but he is actually fined something between 7,100*l.* and 10,000*l.* for embarking in and carrying out a transaction which is not only a legitimate one, but which the authors of the Finance Act assert is so commendable that their measure will encourage it and similar transactions.

Now compare this with another transaction. A man buys an estate for 10,000*l.*, and sells it within three months for 11,000*l.*, which represents interest at the rate of 40 per cent. per annum. He entirely escapes increment duty. The purchaser in turn sells it to another man almost immediately at 1,000*l.* profit, and pays nothing in the way of increment duty; he again sells it for 1,000*l.* profit, but this time increment duty becomes payable, on no principle whatever except the purely arbitrary one that these 10 per cent. allowances must not exceed 25 per cent. in five years.

What is the inevitable result of such a system of taxation? Obviously, unless there is a certainty of enormous profits which can cover almost any demands, no prudent person would embark on a transaction requiring many years to work out, involving an enormous charge for interest in the meantime, and yet carrying with it the liability to taxation based upon the entirely false assumption that no such heavy liability as compound interest is to be taken into account. And yet this accumulating interest is the essence of such transactions as the Letchworth Garden City, and many seaside estates, and is a most important feature in all such transactions.

Building development is at all times an uncertain speculation, and it seems to me that unless some more common-sense view is taken of these matters it will be the height of indiscretion for anyone to undertake the development of more than an acre or two at a time.

Even the undeveloped land duty, which is justified as a means of bringing more land into the market, and so stimulating the supply of available building land, becomes, in the case of these estates requiring many years to work out, a most oppressive burden. Land which, as in the case above mentioned, is of comparatively little value, which requires a heavy initial outlay, and which becomes valuable only on account of the enterprise and large expenditure of its owners, becomes after twenty years liable to undeveloped land duty.

Great play has been made on political platforms with the fact that this undeveloped land duty is "only a halfpenny in the pound." But even a halfpenny in the pound may work out at temporary confiscation. Take the case of my seaside resort just referred to—land that may have been bought for 10*l.* an acre may have had so much money sunk in developing it that in order to get it back it may not show any profit if sold for 1,000*l.* per acre. It may be standing idle because its time has not come, and yet have to pay a tax of 2*l.* 1*s.* 8*d.* per acre because its owner has turned it from land worth 10*l.* per acre into land worth 1,000*l.* per acre.

Even if the 1,000*l.* per acre were yielding 4 per cent. per annum, a tax of a halfpenny in the pound on the capital value means an income tax of 1*s.* 0½*d.* in the pound; but as it yields nothing and cannot be made to yield anything until it is actually required for building, this tax cannot be regarded in such a case as anything but a tyrannous exercise of the power of the purse.

The object which the authors of the measure had in view is quite clear, viz., to prevent a man holding up his land for more than twenty years, and so only giving him relief on the ground of his expenditure for that period; but they either did not know, or had lost sight of, or were too obsessed with the "holding-up" bogey, or were too much in need of money, to have regard to the just claims of those who are engaged in these long-drawn-out transactions.

Wren Hoskyns in his "Chronicles of a Clay Land Farm" makes an acute observation that whereas many an excellent measure is rendered nugatory in its administration, so many a vicious measure is made tolerable in its administration. That is the substance, though not, perhaps, the *ipsissima verba* of what he says, and it is quite possible that in the administration of this Act its inconsistencies and offences against fair dealing may be so toned down as to render it more in accordance with what we are accustomed to regard as fair play. If so, it would be a matter of immense convenience to the land-developing class which it is desired to encourage if they knew how they were going to be treated in regard to these and many other similar problems. What hope there is for this consummation is at present beyond the wit of most of us to speculate.

The feeling that has inspired this measure no doubt had its origin first in a belief that enormous profits are made out of land speculations, and, secondly, that without any effort on the part of the lucky landowners their land greatly increases in value in the neighbourhood of large towns. The public eye is caught by such cases when they occur, but it is blind to the cases where heavy loss is the result. How many solicitors and surveyors have been ruined by land speculations.

Even among people who ought to know better one frequently hears the most extravagently sanguine estimates, as in the case of a witness who some time ago in my hearing gave evidence that certain land would be worth 1,000*l.* an acre when ripe for building. When asked how long that would be, he replied, "Probably in five years."

Now as this was land not well placed and three miles outside the London building fringe, and as London spreads at about the rate of one mile in twenty-five years as near as can be, it is obvious that the witness spoke without reflection. The five years have passed some time now, and the land to-day is worth less now than then. If an account could be taken of all the money invested in suburban land I venture to think the results would be not a little surprising to the optimistic. My own experience may be summed up in these words: "Never buy suburban land to look at."

OUR CONTEMPORARIES FROM OVERSEA.

THE *American Architect* (New York) devotes most of its illustrations to the First Congregational Church, Old Lyme, Connecticut, which has been rebuilt from the designs of Mr. Ernest Greene to reproduce as nearly as possible the appearance of the early nineteenth century building which was burnt down in July 1907. This old building was of wood. The new one is of steel and concrete, with an external casing of wood. Other illustrations are of architectural sculpture or carving by Mr. A. Stirling Calder.

Der Architekt (Vienna) contains a coloured plate of the design of Herren Beutinger & Steiner for a new bridge over the Rhine at Lauffen. The same architects are also represented by their design for a "dependance" at Bad Mergentheim. Professor Jan Kotera's charming addition to a villa at Bubenc, near Prag, is illustrated; also a school designed for Cronstadt by Rudolf Truska, and some tramway waiting kiosks by Christoph Ernst.

La Construction Moderne (Paris) describes the Château de Serrant and the Château de Brissac, and illustrates the latter and the Château de Montsoreau.

Deutsche Bauzeitung (Berlin) gives further description and illustrations, including plans, of the new town hospital at Rixdorf, near Buckow.

The *Western Architect* (Minneapolis) for this month is principally a monograph of the career of Mr. G. J. Eckel, "one of the oldest and most successful and respected practitioners of architecture in the Central Western States," and many of the buildings which he has designed, either alone or in conjunction with other architects, are illustrated.

Engineering Record (New York) contains a report of considerable interest by a committee representing the American Society for Testing Materials on a number of tests on paint for preserving steel. A description is given of the foundations of the Woolworth building, New York, which is intended to be the highest building in the world, 775 feet high above the street level.

ILLUSTRATIONS.

GIDEA PARK GARDEN SUBURB, ROMFORD.

WE illustrate some of the houses erected at Gidea Park from photographs by Mr. J. Halliday Borland.

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.

WE are pleased to be able to publish this week a further series of reproductions of sketches made on the A.A. excursion last month by Mr. Charles E. Bateman, President of the Birmingham Architectural Association.

THE Committee of the Galashiels Burns Memorial have accepted provisionally the design of Mr. F. W. Doyle Jones, of Chelsea, for the "Braw Lads" Memorial which it is intended to erect on a site at the foot of Lawyers Brae. The successful design provides for a memorial in the form of a bust of Burns, about 3 feet 3 inches in height and 1½ life size, cast in the finest bronze, and placed on an ornamental pedestal of dressed granite about 10 feet in height.

THE AGE OF STONE CIRCLES.

(Concluded from last week.)

THE deposits of silting must now be described, beginning at the bottom with the pure chalk rubble. This material was found, as in the other cuttings, to cover the whole of the solid faces of the fosse, and its accumulation must have been very rapid when the ditch fell into neglect. Relics found in this deposit would probably all belong to the first decade or so following the disuse of the monument. This silting was no doubt the result of natural causes, *i.e.*, the scaling of the profile of the fosse in frosty and rainy weather, and the falling down of material forming the embankment, which in all probability was not at that time turf-clad. Comparatively small quantities of turf and mould would, in the course of construction, be thrown up with the chalk to form the great vallum, and the occasional fall of the dark mould from the bank would be sufficient to account for the concave streaks, or seams, in the chalk rubble of the fosse, which were even better defined in the 1911 section than in the cuttings previously made. The lowest seam of mould, which extended right across the cutting in one part, reached at the point of greatest concavity to within five feet of the bottom of the fosse. The three seams on the south side of the silting were, for a length of several feet, exceptionally noticeable. On the eastern margin the depth of chalk rubble in the middle of the fosse was ten feet. This rubble was very large at about 2.5 feet from the bottom, especially in the middle of the ditch, but it became rather smaller again on the bottom. Pieces of iron pyrites were commonly found in the rubble, but very little flint was observed, and most of the pieces were very small. Fragments of charcoal were occasionally met with. At the top of this deposit the lumps of chalk were found cemented together, no doubt by means of carbonate of lime contained in water which had percolated through the upper silting, consolidating the chalk and rendering it as durable as the hardest concrete. Its thickness was perhaps hardly as great as in Cuttings I. and II. of former years.

The upper deposits of silting consisted, from the top downwards, as in the other cuttings, of (1) turf and turf-mould; (2) surface silting; (3) mixed silting, and (4) fine mixed silting, their thickness on the eastern margin being, in the middle of the accumulation, 0.65, 3.35, 2.7, and 2 feet respectively. This gives a total depth of silting above the chalk rubble of 8.7 feet. On the western margin, where the fosse was shallower, these deposits were represented by a thickness of 7.7 feet. Dividing the surface silting from the mixed silting was a thin seam of small pieces of chalk which was traced nearly the whole way along the cutting. So much has been said in the former reports on these deposits that it will be unnecessary to make repetition here.

Above the chalk rubble two distinct patches (not seams extending across the cutting) of dark mould and very fine chalk were traced, the lower one practically throughout the length of the digging. The higher patch was at an average depth of 5 feet, the other about 7.2 feet, below the surface, in what are called the "mixed silting" and the "fine mixed silting" respectively. Maximum thickness of each, 0.6 foot. Evidence of fire was distinctly traceable, and charcoal in small pieces was observed in both deposits. In the lower patch a piece of the burr of a small red-deer antler, a bit of burnt bone, and fragmentary animal remains were found, and the charcoal included remains of beech (identified by Mr. Clement Reid); the objects described later under No. 160 were also collected from the same material. The prehistoric pottery, No. 167, was found in the upper deposit of burnt material. It is a question if these deposits do not indicate some sort of occupation when the fosse had silted up to these respective levels.

IV. *Relics found in Cutting VIII., Fosse.*

147, 148, 150, 151. Fragments of rims, &c., of glazed and unglazed mediæval pottery. Depths from 2.2 to 2.6 feet in the surface silting. (Several other pieces of mediæval pottery were found, but only the best samples preserved).

149. Two small tines of deer (in poor preservation). Depth six feet in the mixed silting.

152. Fragment of soft New Forest ware, painted and slightly ornamented; Roman. Depth 4.2 feet near the top of the mixed silting.

153. Fragment of brown pottery, Romano-British. Found as No. 152.

154. Finely chipped flint knife, of plano-convex section, worked on the convex face only and along both edges; the butt-end shows the outer crust of the flint core from which the implement was struck; length 61 mm., maximum width 30 mm., maximum thickness 8.5 mm. It was badly fractured by being struck by an iron pick, but has been neatly repaired. Depth 5.7 feet in the mixed silting.

155. Two fragments of light brown pottery, Romano-British. Depth 4.3 feet near the top of the mixed silting.

156. Small iron cleat (for shoe or sandal); length 22 mm., with narrow base (width 7.5 mm.) and the usual projecting points for attachment. Depth 4.7 feet in the mixed silting.

157. Two fragments of mediæval pottery, with band of ornament. Depth 3 feet in the surface silting.

158. Fragment of brown pottery, with faint striations. Romano-British. Depth 4.5 feet in the mixed silting.

159. Flat and rounded disc of sandstone. Depth 6.8 feet in the chalk rubble.

160. Part of the beam of a shed antler of red-deer, with burr, brow- and bez-tines complete; unworked. Depth 7 feet in the fine mixed silting in a patch of burnt material. Close to the antler were found part of a dog's jaw and a boar's tusk.

161. Greater part of the rim and sides of a black earthenware saucer, Romano-British. It cannot be completely restored. The fragments were found strewn over a considerable area. Depth 3.5 feet in the mixed silting.

162. Bronze fibula, Roman, having a semi-circular bow of plano-convex section, the rounded upper surface being ornamented longitudinally by a beaded pattern of the character usual in brooches of this type; the nose, consisting of a rounded knob, appears to have been broken and replaced by a knob of a different metal; the pin is hinged, with an iron axis; the head of the bow terminates in a plate bearing the inscription AVCISSA (unfortunately the initial A has been broken off); length 49.5 mm. Found near the western margin of the cutting, depth 3.9 feet at the top of the mixed silting. (There is no doubt about the finding of the brooch in this position, as it was discovered by the writer.)

163. Six small fragments of coarse, hand-made, badly baked pre-historic pottery, ornamented on the external surface by lines of twisted cord pattern and finger-nail marks. Also a straight rim fragment, of similar character, ornamented externally by four parallel lines of twisted cord pattern, and internally by a single row of the same, below which there is a row of deep finger-nail marks. Depth 5.8 feet near the bottom of the mixed silting.

164. Straight piece of red-deer antler, apparently unworked; length 6⅛ inches. Depth 8 feet in the middle of the fosse near the bottom of the mixed silting.

165. Greater part of a large rib-bone, probably of ox, with rough, slightly incised, longitudinal scoring. Found resting on the floor of the fosse.

166. Hollow-scraper, or arrow-shafter, of flint. Depth 4.6 feet in the mixed silting.

167. A large number of fragments of hand-made prehistoric pottery, the largest piece, after repair, measuring about 2½ by 2¾ inches; maximum thickness, ½ inch. The fragments were distributed over two or three feet of ground in burnt material, and seeing the importance of the "find" after the first piece or two had been collected, the writer obtained a sieve through which all the surrounding material was passed. This pottery has not yet been microscopically examined, but the ware is coarse internally, the surfaces being carefully finished to receive impressed ornament; black on the inner surface, a light reddish-brown on the outside. At about 43 mm. below the almost straight rim there is a decided shoulder or ridge encircling the vessel with a hollow moulding below it. The ornamentation between the top of the rim and the shoulder consists of a double row of herring-bone pattern impressed before baking, by means of a notched implement of wood, bone, or antler, or perhaps by a piece of shell having natural ribbing. Below the shoulder there is similar ornament, but owing to the fragmentary state of the portion of the vessel remaining, it is impossible to say how far this style of decoration extended in the direction of the bottom of the pot. With the pottery were found three flint flakes (one with secondary chipping), pieces of burnt iron pyrites and very small bits of burnt bone. Found in the mixed silting, depth five feet in the western half of the cutting.

168. Small piece of coarse hand-made prehistoric pottery, containing grains of quartz; described as of the Bronze Age type in the former reports. Depth 14 feet in the chalk rubble.

169. Part of a human humerus, and the greater portion of a human tibia (both from the left side of the body). The tibia is of small size and the following measurements can be obtained:—Antero-posterior diameter 30 mm., transverse

diameter of the shaft 21 mm., latitudinal index 700. Depth 4.5 feet in the mixed silting.

170. Complete shed antler of red-deer, of medium size, the brow- and bez-tines broken off; total length in a direct line 22 inches. There is no evidence of its having been used as an implement. Found on the floor of the fosse near the south margin.

171. Rib-bone of an animal (smaller than ox), cut to a rounded termination at one end, where it is very smooth and slightly bevelled from one side. Found on the floor of the eastern half of the fosse, against the north face.

172. Crown of an antler of red-deer, with three points or surroyals, which bear evidence of some wear, and may have been used as a rake. Found on the bottom of the fosse near No. 171.

173. Fragment of the base of an antler of roe-deer. Depth five feet in the mixed silting.

174. Small antler of a very young red-deer. Depth 5.5 feet in the mixed silting.

175. Broken pick of shed red-deer antler; the bez- and trez-tines removed, the brow-tine broken; evidence of hammering is seen on the back of the burr. Depth 14.8 feet in the chalk rubble, near the floor and close to the western margin of the cutting.

176. Broken pick formed from a shed antler of a large red-deer; maximum circumference of the beam between the two lower tines, 161 mm.; the brow-tine has its point missing; considerable evidence of hammering is seen on the back of the burr. Also part of a rib-bone, probably of ox. Found on the bottom of the fosse on the west margin of the cutting.

A few other fragmentary animal bones were found on the bottom of the fosse, among which pig was identified.

Flint flakes were perhaps not quite so numerous as in Cuttings I. and II. (1908-9).

Some of the wood specimens, animal remains and shells have not yet been examined.

V. *General Remarks on the Relics discovered.*

In the last chapter it is shown that no fragment of mediæval pottery was found at a greater depth than three feet, and that all were situated well within the deposit called "surface silting." The objects and pottery of the Roman period were all found between the depths of 3.5 feet and 4.5 feet in the upper part of the "mixed silting." In the lower part of that deposit the flint knife, No. 154, was found at a depth of 5.7 feet, the hollow scraper of flint, No. 166, depth 4.6 feet, and the prehistoric pottery, Nos. 163 and 167, already described, depth 5.8 feet and five feet respectively. It is seen, then, that the lowest object of the Roman period and the highest pieces of prehistoric pottery were in relative levels, only six inches apart. Passing to the "fine mixed silting," nothing was obtained but unworked pieces of red-deer and roe-deer antler. In the lowest deposit, the "chalk rubble," a small fragment of prehistoric pottery was found at a depth of 14 feet, a broken antler pick at a depth of 14.8 feet, another on the bottom, a worked rib-bone also on the floor, and a complete red-deer antler and the crown of another in the same position. This season we found no traces of worn animals' scapulæ on the bottom of the fosse, but in 1909 we obtained convincing proof that these bones were, with slight alteration, used as shovels for removing loose chalk.

There are no special remarks to be made on the mediæval or Roman pottery shards. The small cleat is an object of frequent occurrence in Romano-British deposits, and its use as portion of the iron furniture of sandals, or shoe leather, is proved by the discovery of specimens, with a quantity of hobnails, at the feet of skeletons at Rotherley and Bokerly Dyke. A specimen was found on the old surface line under the rampart of the Wansdyke, a few miles south of Avebury.

The Roman brooch, or fibula, No. 162, already described as bearing the maker's name, AVCISSA, is a personal ornament of very definite type and date (first half the first century, A.D.); and it adds one specimen more to the short list of brooches bearing this inscription found in England. A similar fibula with the same lettering was found in the parish of Marlborough last year, and is here placed on record for the first time; it may be seen in the collection of Mr. J. W. Brooke of that town. Recently the writer recorded and figured a similar brooch (with the S's reversed) found on Ham Hill, South Somerset. Two other examples come from the same county and were found about 1875 in the Roman lead-workings at Charterhouse-on-Mendip (Bristol Museum). Two others were found at Cirencester (one is in the Bathurst Museum, the other in the Cripps Museum). A large collection of Roman remains bought for Hull Museum in 1905 included two "Aucissa" fibulæ, found presumably in a Roman cemetery at South Ferriby, Lincolnshire. Professor L. Haverfield had up to 1905 recorded twenty-eight fibulæ bearing his name, of which six were then known from England; the Ham Hill, Marlborough and Avebury examples have now been added to the list. The type, without inscription, is not rare, and has been found commonly in many parts of the Roman Empire north of the Mediterranean, and outside it, including the Caucasus and Tomsk in Siberia.

The finely chipped flint knife, No. 154, already described, has every appearance of great age, and is of typical Neolithic form. It is similar in shape to the knife found by Canon Greenwell in a barrow on Wykeham Moor, Yorkshire, but smaller.

Perhaps the most important discovery made this season is that of prehistoric pottery, Nos. 163 and 167 (previously described in detail), found at depths of only 5.8 feet and five feet respectively below the surface of the silting. The presence of ornament of a definite type renders them the easier of identification. Sufficient remains of the rim and sides of No. 167 to identify the typical "shoulder," with hollow moulding below it, but unfortunately there are no fragments of bottom, and therefore it is impossible to say whether the vessels had round or flat bases. The upper part of the vessels may be described as having straight rims with a slight bevelling of the lips on both sides. The rim piece, No. 163, with twisted cord pattern on the external surface, can be matched exactly by a fragment of pottery (not figured) found in the West Kennet Long-barrow, and now in the British Museum.

The pattern on the several fragments comprising No. 167 has already been described, and it only remains to say here that the ornamentation is of the same kind as that which embellishes the well-known pieces of pottery found in the Long-barrow at West Kennet, near Avebury, of which a few fragments may be seen in the British Museum, and a larger series in Devizes Museum. One of these fragments with the grooved herring-bone design, the depressions being ornamented by transverse notches, has frequently been figured as a specimen of Stone Age pottery.

Ornament precisely similar to that on the Avebury fragments (No. 167) is seen on the Neolithic bowls from Peterborough and the Thames at Mortlake (but the ribbing across the grooves is not clear in the latter specimen). Similar decoration is also seen on a fragment of prehistoric pottery found in association with Roman remains only 1.1 feet deep in the silting of the ditch of Wor Barrow (long-barrow), Handley, Dorset. Its position in the ditch was of no datable value, and the fragment must have been mixed with the soil when deposited in the position in which it was found. Two round barrows near Handley also produced prehistoric pottery bearing the same type of ornament as these Avebury shards. That in the first barrow was found at a depth of one foot on the chalk floor; the mound was small, with encircling ditch, outside which no less than fifty-two cremated interments were discovered. That in the second was found in the body of the mound, depth 1.8 feet. These fragments were probably in the soil originally thrown up to form the barrows, and as Neolithic man is known to have used Handley Downs for funereal purposes, there was every likelihood of Neolithic shards becoming scattered in the neighbourhood. This is mentioned because General Pitt-Rivers says in regard to this ware, that, in spite of the West Kennet pottery being assumed to be of the Stone Age, the fragments from Handley bearing similar decoration were without doubt associated with relics of the Bronze Age. He inclined to the conclusion, therefore, that the pottery in question was referable to the Bronze Age.

But the study of prehistoric pottery has developed considerably even since the General's time, and although the *gisement* of shards of ancient pottery (upon which one's conclusions are partly based) is of the highest importance in archæological excavations, single pottery fragments of earlier date, in a locality successively occupied by tribes from and including the Stone Age, must occasionally have become mixed with relics of later times, and especially in localities frequented by burrowing animals.

The writer is inclined on the whole to regard these pottery fragments, Nos. 163 and 167, as being of Neolithic date, and it is possible that some of the unornamented fragments described as being of Bronze Age type in the former Reports may really belong to the Stone Age. At the same time it should be pointed out that no pottery of the drinking-vessel, or beaker, type has yet been discovered at Avebury; and it should also be repeated that only six inches of silting divided the lowest object of Roman date found from the prehistoric pottery discovered nearest the surface.

A small fragment of pottery belonging to No. 163 was sent to Mr. Clement Reid for close examination, and he has kindly sent the following interesting report:—

"The 'grout,' or coarse material used for stiffening this pottery and making it keep its shape when burnt in an open fire, is of unusual composition. It consists mainly of fragments of burnt bone, with a few minute bits of charcoal. I think that ashes of a fire have been used, as being grit that would not fly, shrink, or burn out when the pottery was fired; there are also one or two small fragments of flint. The clay with which this 'grout' was mixed seems to have been a coarse sandy clay with large rounded grains of quartz. Probably the so-called 'clay-with-flints' so common on the chalk-downs was used. As far as one can judge from so small a sample, only enough clay was used to bind the material."

VI. *Concluding Remarks.*

From the detailed description of the relics discovered in Cutting VIII., and on reference to the former Reports, it will be seen that the objects found this year are more important with regard to the much debated subject, "the date of Avebury," than those discovered previously. The strong negative evidence of date afforded by the absence of metals below the Roman stratum of silting has now been greatly strengthened by the discovery of prehistoric pottery of a well-known kind—a type which has been associated with Long-barrows and such early settlements as the prehistoric pits at Peterborough.

All the objects discovered in the lower half of the mixed silting, in the fine mixed silting, and in the chalk rubble are such as are characteristic of the Neolithic period, and we have decidedly less hesitation in regarding the fosse of Avebury as being of Neolithic construction than we had at the close of the excavations of 1909. The relics discovered have not been numerous, but considering the early date and the great extent of Avebury, and the comparatively small area yet excavated the most optimistic antiquary could hardly have expected to find a greater variety of objects in the prehistoric area than pottery with characteristic ornament; flint knives and scrapers, and flakes with secondary chipping; picks, hammers, levers, and other implements of antler; bone shovels, and other bones more or less worked.

We have proved much, but have yet a good deal to learn with regard to the mode of construction of Avebury, and the methods adopted in excavating the stupendous fosse and aising the great vallum.

It will be a great disappointment if a means cannot be ound to make an adequate examination of the southern ntrance-causeway of Avebury and the items of structural nterest adjoining it, and a serious hindrance to archæological esearch and to the endeavour to piece together the history of Britain's greatest prehistoric stone monument.

BUILT-UP COLUMNS UNDER LOAD.

(*Concluded from page* 125.)

THE main points brought out in the preceding discussion may be recapitulated as follows:—

1. The practicability of making tests to determine the ctual stresses which are developed under working loads and p to the elastic limit of the material in the members of a olumn, throughout its length and over its cross-section, has een shown. The results significantly point to the importance of making investigations of this kind. The experiental work involved is tedious and laborious, and, of ourse, the work requires skilled and experienced experienters. The need of such information has been recognised eretofore, but tests have not been taken up because of the upposed impracticability.

2. An important result of the tests is the evidence that nsiderable local flexural action exists in the channel members of the columns, such as may be produced by lack of raightness or by any method of applying the load eccentrilly. This is especially true in the flimsier column.

3. The condition of flexure varies markedly throughout e length of the channel member, in some cases the maximum mpression in one cross-section being at the extreme fibre on e side of the channel, and in a near-by section the other de of the channel showing the excess of stress.

4. There were also indications of sudden changes in the lative amount of stress carried by the two channels at ear-by sections, indicating general flexure of the column.

5. The measurements made indicate in a number of cases stresses in the extreme fibre from 40 per cent. to 50 per cent. in excess of the average stress, and in some cases even higher.

6. The amount of eccentricity necessary to account for the increase of stress found in individual channels, based on lack of straightness and the ordinary theory of flexure, is relatively small.

7. The amount of deformation observed in lattice bars is relatively small, and its variation throughout the length of the column is quite irregular. The measurements indicate a stress in the lattice bars which would be produced by a transverse shear equal in amount to 1 per cent. to 3 per cent. of the applied compression load, or to that produced by a concentrated transverse load at the middle of the column length equal to 2 per cent. to 6 per cent. of the compression load. The stress referred to is the average stress over the section of the lattice bar.

8. It seems futile to attempt to determine the stresses which may be expected in column lacing for central loading by analysis based on theoretical considerations or on data now available.

9. When the column was tested as a beam, the extreme fibre stress in lattice bars in compression was found to be from 1.4 to 5.5 times the average stress over the cross-section of the lattice bars, and the extreme fibre stress in lattice bars in tension was found to be 1.7 to 3.2 times the average stress.

10. Tests of individual lattice bars for load-carrying capacity under conditions which resemble those of service show that the usual form of bar is a very inefficient compression member when loaded eccentrically through a riveted connection. The ultimate strength was in no case as much as one-half of the yield point of the material.

11. The formula

$$\frac{P}{A} = 21{,}400 - 45\frac{l}{r},$$

represents fairly well the ultimate strength of the flat lattice bars tested, based on material having a yield point of 40,000 lb. per square inch.

12. It seems evident that the component members of a built-up column do not act together in such a way as to give entire integrity of cross-section in resisting bending.

13. The distribution of stress under working loads, and even up to incipient failure, may be different from that which exists after the column becomes crippled. This is due to the yielding of the more strained parts after the yield point is reached at any fibre, and a consequent redistribution of stress.

14. The sudden failure of a test column at a relatively low load by buckling of the lattice bars is accounted for when the amount of transverse shear developed in other test columns and the strength of lacing found in lattice-bar tests are taken into consideration.

15. No relation has been found between the stresses actually observed and the stresses computed by column formulas. The stresses do not increase toward the middle of the length of the column, as may be expected from the Rankine form of analysis, but are quite irregular in their location and distribution.

16. Much of the excess of extreme fibre stress over average stress is evidently attributable to local crookedness of piece, eccentricity of bearing of lattice bar connection, lack of rigidity of lacing, and other irregularities that are due to the condition of the material and its fabrication, and what may be considered to be inherent variations and defects in the constructed compression piece. Within the elastic limit of the material and for the lengths most commonly used the lateral flexure of the column as a whole is very slight, and slenderness ratio cannot be said to be the governing consideration. Undoubtedly, the chances for variations from the ideal column will become greater as the column length becomes greater, and these variations may have a more marked effect upon its strength.

17. It is evident that the form of section is important. Stocky and stiff component members are less liable to receive kinks, bends, and distortions during and after fabrication, and will resist the effect of such imperfections with less resulting stress than will flimsy pieces. Some column sections are well calculated to resist bending, buckling, and twisting, and are so tied together as to preserve integrity of section, while others have less resistance to general distortion. Even the wrinkling action in plates and thin parts needs consideration. It seems reasonable that, for columns of the same length and containing the same amount of metal (within the ordinary dimensions), one which is of stocky form and in which the metal is distributed so as to resist local flexural

and torsional action will be stronger and more satisfactory than a column of more flimsy form, which has its metal spread in thinner sections, even though the slenderness ratio, $\frac{l}{r}$, of the former may be considerably more than that of the latter. Further, a section which will come through the shop and erection processes with the least imperfections has advantages.

18. This field of investigation is a promising one, and its importance to the engineering profession warrants its being taken up in a thorough and comprehensive manner. Full information on many matters is needed before better and more nearly satisfactory column formulas may be established.

INSTRUCTION IN STRUCTURAL ENGINEERING AND REINFORCED CONCRETE.

Up till recently no adequate course of instruction was available for students of reinforced concrete, but last winter the deficiency was repaired by the establishment of classes in this subject at the London County Council School of Building, Ferndale Road, Brixton, S.W., the lecturer being Mr. H. Kempton Dyson, the Secretary of the Concrete Institute. The course was a very complete one, and the demand for such instruction resulted in a large attendance and necessitated an extension of the scheme, an elementary theory class being formed and two assistant teachers appointed. As the result of the experience last session the scheme of instruction has been again extended, and the scope enlarged for next session, which commences on September 18. Although the London County Council made a special grant for the purchase of urgently needed apparatus and tools for practical instruction, goods were only received late in the session, but this year many more testing appliances, tools, &c., have been added, and a more systematised course of instruction will be possible this session. Though the subject of reinforced concrete is taught in many places abroad, the course at the School of Building is distinctive in respect to the great feature made of practical work, which is of the utmost importance to a knowledge of theory and the proper execution of the work. Those who seek to design work are required to take both the practical and theoretical instruction, but the practical part is so arranged that it can be taken independently by builders, clerks of works, foremen, craftsmen, and others who only wish to study this aspect. It is to be hoped that the practical workers will avail themselves of the opportunity, for there is a most regrettable ignorance of the proper methods of carrying out concrete work displayed in building work in this country. As an outcome of the establishment of this class for reinforced concrete, the need was ascertained of a more extended field of operations. Reinforced concrete design is a branch of structural engineering, and for its proper study requires a knowledge of applied mechanics and the design of various kinds and parts of structures. Structural engineering is becoming a specialised subject, and therefore this session a complete course of instruction therein has been framed extending over four years, in which various other classes at the school have been utilised in the preliminary stages, and the opportunity will be taken in giving the necessary instruction in the principles of structural design to show their application to all constructive materials. This while a necessary part of reinforced concrete instruction is to be so arranged as to appeal to those who desire to obtain a knowledge of higher theory of structures. This branch also will be distinctive because the practical design of structures will be demonstrated, including such subjects, for instance, as heavy timberwork, bins, foundations, piles, reservoirs, tanks, pipes, culverts, bridges, statically indeterminate structures, fire-resisting construction, architectural acoustics, &c. The last two named are specially noteworthy, and the lecturer will impart much original information. To supplement the foregoing a class will be formed to give practice in the drawing and design of structures in reinforced concrete and steel. This class will be conducted on the lines of a drawing office.

The full scheme is as follows:—

Elementary Course.—(1) Reinforced concrete construction, quantities, and practical work—Mondays; (2) Reinforced concrete, theory and design—Tuesdays; (3) Drawing and design of the constructional steelwork of buildings—Wednesdays.

Advanced Course.—(1) Structural design—Wednesdays; (2) Reinforced concrete, theory and design—Tuesdays; (3) Drawing and design of reinforced concrete and steelwork—Fridays.

The time will be 7 to 9 p.m., and the session lasts about thirty weeks. The detailed syllabus can be obtained free on application at the School. The fees are very moderate, being 10*s.* per session (and in special cases 4*s.* 6*d.*).

THE ANCIENT FRESCOES AT CHICHEN ITZA.

A communication presented to the British Association at the Portsmouth meeting, 1911. By Miss A. C. Breton.

The ruins of Chichen Itza in Yucatan are amongst the most important in Central America, being especially remarkable for the number of coloured portrait sculptures and frescoed walls. The frescoes have been sadly destroyed in the course of centuries, but enough remain to provide striking pictures of the life of the ancient folk. In two of the upper rooms of the building called the Nuns' Palace, the walls and vaulted ceiling were entirely covered with scenes which had backgrounds with thatched houses and trees, also temples with high-pitched roofs enclosed within battlemented walls. There were groups of warriors armed with spears, *atlatls* (throwing sticks), and round shields, and others seated on the ground, with ornamental tails hanging from their girdles. The drawing was firm and spirited, the colouring vivid and harmonious.

Stephens observed a row of Maya glyphs painted just below the vaulting in the interior of the small building known as the Iglesia, but they have disappeared, and there are n signs of any glyphs among the paintings at Chichen Itza. The chambers of the Akaboib have been whitewashed i modern times, and only a blue band along the edge of the vault is now visible. In the narrow corridor of the Caracol too, very little colour is left.

The building at the south end of the eastern wall of the great Ball Court, usually called Temple of the Tigers, contains in its upper part the best-preserved paintings yet discovered. The outer chamber having been filled with débris owing to the fall of the roof when the wooden lintels gave way, the inner chamber also became partly blocked and difficult of access, until Dr. Le Plongeon in 1884 cleared away most of the accumulated material, and partly copied the paintings in it. Visitors wrote their names over the frescoes, bats lived at one end, swallows at the other, and bees made tunnels in the plaster. Still it has been possible t secure many of the details and to give some idea of the composition. The chamber is about twenty-six feet long, and not quite eight feet wide, and twenty-two feet high to the top of the vault, with the door in the middle of the long western side. Each of the long sides is divided into three panels, of which the four end ones represent landscapes full of armed warriors, as do those of the north and south sides with houses above, and tents and temporary buildings below where chiefs are consulting and priests perform rites o divination. These panels are divided by a blue band from dado with mythological figures and plants.

The south-west end is the most complete, and has abou 120 figures, almost all of them placed at certain distances and angles from each other. These distances were measured from the point where the nose of each figure appears above the shield, and form the basis of the composition. The position of the shields fixed, the artist then drew the figures according to his fancy, and no two are alike. In this scene the attacking party are distinguished from the defenders o the village above by a difference in costume. The former have cotton knee and ankle bands, small green shields a their backs with hanging streamers, and round green earrings and necklaces. Their headdresses, surmounted by lon feathers, are more elaborate than those of the villagers. Th latter have a round, stiff headpiece with two or three blu feathers standing up from it, oblong ear ornaments whic pass through the elongated lobes, white shirts and roun shields, usually with a crescent in the centre as device. Al cast their spears from *atlatls*. The chiefs, who sit in consultation below, have feather mantles like those of the portrait statues which supported the sculptured table in th outer chamber.

The narrow south end panel also has a scene of attack with high scaffold towers and a ladder of a notched tree trunk, on which some of the assailants are perched. Her the men are taller and more athletic than in the previou scene. In the following panel there are more importan houses, forming a town, with a forest on both sides, in whic are animals, snakes and birds. Beyond come the Red Hill on which wilder figures are grouped, with rocks and tree below. The north end is much destroyed, but some personages on a background of blue sky may represent departed heroes. The shields in this are oblong. The last of these scenes shows a group of houses inside a defensive barrier, and blue warriors in feather cloaks have conquered the inhabitants. Above the door a life-size recumbent figure may be the hero in whose honour the building was erected.

SMOKE ABATEMENT.

A COMMUNICATION presented to the British Association at the Portsmouth meeting, 1911, by Dr. J. S. Owens.

FROM the point of view of smoke emission the present position of the manufacturer who burns bituminous coal in his furnace is that, while he knows dense smoke to be unnecessary and wasteful, entire absence of smoke is practically impossible to attain under working conditions. The question therefore is, What is the least amount of smoke such a manufacturer might be asked to limit himself to?

The present legal standard of "black smoke in sufficient quantity to be a nuisance" is admittedly unsatisfactory, as black smoke is a thing rarely if ever seen; also, the blackness alone is no measure of the amount of pollution nor even of the amount of soot per ton of coal burnt. The present standard is therefore out of date. Meanwhile the public have to breathe polluted air, to suffer in health and pocket, have their buildings injured and disfigured, and their sunshine cut off.

A sound standard of maximum allowable amount of smoke should be fixed and enforced. Two questions must be answered before such a standard can be fixed: (1) What is the best and most practicable method of measuring smoke? (2) Having decided on (1), what is a fair maximum of smoke emission to fix, as measured by (1)?

To answer the first question we must decide exactly *what* we are to measure. We may set ourselves to find out: (1) The total quantity of soot emitted in a given time; (2) the weight of soot emitted as a percentage of fuel burnt; (3) the density or weight of soot per unit volume of flue gas; (4) the ratio only of density to a standard; (5) the colour; (6) the opacity or blackness.

In deciding the method of measuring we must keep in view: (*a*) Fair comparison between chimney and chimney or with standard; (*b*) ease of application and simplicity; (*c*) reasonable accuracy; (*d*) the smoke must be measured from outside factory; (*e*) the method must be capable of use by a single observer.

The standard suggested is one of *maximum density for maximum time of emission.* By density is meant amount of soot per unit volume of flue gas. A smoke of great density would be permitted for a short time only, whereas one of less density might be permitted for a longer time.

The method of measuring the density suggested is by matching the opacity of the smoke to that of calibrated smoked glasses, each glass representing a certain density of smoke in a column of unit thickness, the final figure for comparison being obtained by dividing the density represented by the glass by the diameter of the chimney. By careful construction and the elimination of certain errors an instrument can thus be made to give a fair basis of comparison with a standard density. The author has devised and experimented with an instrument of this type, with promising results. Certain objections will always remain to such a method of measuring, but the author believes that it is only along such lines that the necessary conditions can be fulfilled.

The Alkalies Act of 1906 fixes a standard maximum of one-fifth of a grain of muriatic acid per cubic foot in smoke or noxious fumes, and it appears that the time has arrived when the soot from furnaces should be dealt with on similar lines, modified to suit the case.

THE tenth International Art Exhibition organised by the Municipal Council of the City of Venice will be held from April 15 to October 31, 1912. It will contain pictures, sculptures, drawings, engravings, and works of decorative art.

THE Library and Technical Instruction Committee of the Belfast Corporation have decided to purchase a number of pictures for the proposed new Belfast Art Gallery. Their selection of works is guided by the following Committee of the Contemporary Arts Society: The Earl of Plymouth, Lord Ribblesdale, Mr. D. S. M'Coll, Keeper of the Wallace Collection; Mr. C. J. Holmes, Keeper of the National Portrait Gallery; Mr. Campbell Dodgson, of the Print Room, British Museum; Mr. Charles Aitken, of the Tate Gallery, and others.

PETROL AIR GAS.

(*Concluded from page* 120.)

IN practice we usually know the composition of a mixture in the form of a certain weight of petrol evaporated into a certain volume of air, hence we require for convenience a formula which will give us the vapour pressure directly from these data.

Suppose our mixture consists of 1 kg. of vapour to V cubic metres of air measured at t° C. and 760 m/m, and we want to know the vapour pressure p.

From (1) any mixture in which the pressure of the vapour is p contains

$\frac{p}{760}$ cubic metres of vapour to $\frac{760-p}{760}$ cubic metres air

i.e. if d is the weight in kgs. of one cubic metre of vapour

$\frac{pd}{760}$ kg. vapour to $\frac{760-p}{760}$ cubic metres of air.

i.e. 1 kg. vapour to $\frac{760-p}{pd}$ cubic metres air.

and if V is the volume of air evaporating 1 kg. of petrol in this case, then $V=\frac{760-p}{pd}$

from which $p=\frac{760}{1+Vd}$ ………… (2)

or expressed in English units

$$p=\frac{760}{1+\frac{V}{F}} \quad \text{…………} \quad (3)$$

where V = cubic feet of air evaporating one gallon of spirit and F = cubic feet of vapour given by one gallon of the spirit.

For example, for the complete combustion of hexane as given by the formula $2\ C_6H_{14}+19\ O_2=12\ CO_2+14\ H_2O$:—

2×86 kg. of spirit require $19\times 22{\cdot}4\times 4{\cdot}81$ cubic metres of air at 0° C. and 760 m/m, *i.e.* 11·9 cubic metres of air per kg. of spirit. The density of hexane vapour is

$$\frac{86}{22{\cdot}4}=3{\cdot}84 \text{ kg. per cubic metre.}$$

From equation (3) we get

$$p=\frac{760}{1+11{\cdot}9\times 3{\cdot}84}=16{\cdot}3 \text{ m/m.}$$

and such a mixture should not deposit any vapour until a temperature of −18° C. is reached.

As we often want to know what is the percentage composition of a mixture formed by evaporating a certain weight of petrol into a certain volume of air the following formula may be of value. It is obtained by substituting the value of p in equation (2) in equation (1), from which we get

$$\text{Vols. per cent.}=\frac{100}{1+Vd} \quad \text{……..} \quad (4)$$

or in English units with the same notation as before,

$$\text{Vols. per cent.}=\frac{100}{\frac{1+V}{1=F}} \quad \text{……..} \quad (5)$$

As has been previously pointed out, if we wish to employ a gas which is not explosive in the apparatus it must contain, say, 6 per cent. of vapour. In a 6 per cent. mixture the vapour pressure is $\frac{6}{100}\times 760=45{\cdot}6$ m/m,

and if this vapour is hexane, from the vapour pressure curve we see that it would be saturated at freezing point. The experimental figure of 5 per cent. for the upper limit of combustibility, however, given above, refers to petrol (*i.e.*, a mixture of several hydrocarbons).

The author made some experiments on condensation with a 6 per cent. gas made from Anglo-Special spirit of sp. gr. 0·680, and found that at 0° C. there was a faint deposit (a dew-point instrument had to be employed to indicate this), but that the gas could be run through a coil of pipe kept at −10° C. by a freezing mixture without a deposit of any appreciable magnitude; in fact, the gas was kept burning in a Bunsen burner for some hours with the coil at this temperature. The small quantity that was condensed had quite a different smell from that usually associated with petrol and was very heavy, having a sp. gr. of about 0·760. This latter figure was very difficult to determine owing to the minute quantity available, and the writer would not vouch for its accuracy. In order to discover the condensing point with regard only to the petrol,

MODERN EUROPEAN ARCHITECTURE.

GERMANY.

[From *Berliner Architekturwelt.*

ROYAL PALACE AT POSEN.—Herr Franz Schwechten, Architect.

the gas was dried by passing over calcium chloride before passing into the freezing mixture.

As the piping in any installation is usually either sunk in the ground or inside the house, a very low temperature will hardly ever be met with in practice, so that trouble from condensation of a 6 per cent. gas need not be expected. One is always more likely to find water in the pipes than petrol, but this depends to a great extent upon the design of the machine, particularly in respect to methods of carburation. The deposition of water in the pipes is not of any great importance, as it can always be removed from syphon boxes in any properly designed installation, but the deposition of petrol means a loss of heating value from the gas, and may even become a source of danger if it can leak through the joints. The author would like to state here that in an experience of five years of work in connection with petrol gas he has never come across petrol in pipes except in a case where heavy motor-car petrol was used and carburation was effected at a temperature very much above normal.

The foregoing arguments show that there is no objection to a rich non-explosive mixture provided it is not too rich. Most makers of petrol-gas apparatus, however, seem to prefer a mixture in which all the air for combustion is sent through the pipes and none taken in at the burner. This is, of course, a violently explosive mixture in the gas-holder, which may be fired if a flame can by any accident flash back along the pipes. Hence these manufacturers have to take the most stringent precautions against this possibility, and to this end their burners are choked up with fine gauze or similar dust-collecting material, and there are, or should be, sets of gauzes at the exit from the machine into the service.

It may be argued that in a machine making a non-explosive gas the possibility of failure of the petrol supply may cause it to become explosive. This is a perfectly fair contention, and it would therefore be well to examine the possibility of trouble should this occur.

It is an essential of efficiency that the gas at the point of ignition should be a self-burning one, *i.e.*, an explosive mixture; and when using a rich non-explosive gas this effect is obtained locally by means of a Bunsen burner—the gas issuing from a small nipple and drawing in a further supply of air on its way to the burner head. Obviously, then, if a rich gas in the service produces an explosive mixture at the point of combustion (*i.e.*, about 2 per cent. of vapour to air) an explosive gas in the service will produce a very weak one at the burner head—in fact, a mixture too weak to burn at all, and so put all possibility of lighting back out of court. The writer found that with a machine making a 6 per cent. gas (the same being diluted to the self-burning mixture at the burner head) upon shutting off the petrol supply and still allowing the machine to run, the lights soon became dim and in a short time the flame lifted right away from the mantle and went out. By the time that the failure of the petrol supply had reduced the gas in the service to the explosive point all danger of firing this was removed by the burners automatically going out. Even if by any mischance—and the writer cannot conceive one occurring in practice—the flame could be lighted at the nipple, the latter consisting of a comparatively heavy piece of metal of high thermal capacity, with a small hole in it from which the gas issues, acts in exactly the same way as a piece of gauze and extinguishes the flame by lowering its temperature.

It will be noticed that most, if not all, of the systems employing the low percentage gas are those in which some hand regulation of the mixture is provided for, *i.e.*, machines in which the gas is apt to vary. The fact of the provision of any mixture regulator is, in the author's opinion, an admission of the fact that the machine cannot be relied upon to keep delivering a gas always of the same "make." Now if the proportions of the mixture have to be regulated some index of the desired mixture has to be provided, and as the condition of a self-burning mixture is very strongly marked by the colour of the flame when burned without a mantle, a pilot jet can be fixed on the machine to give the necessary information. If a richer gas were made for the service this index would be of little or no use, as a gas rich in hydrocarbon burns with a yellow flame of very little variation of intensity over a fairly large range. Hence it is very convenient to burn a 2 per cent. mixture in a machine which cannot be relied upon to keep the same gas automatically.

A point which is little understood by the layman is the

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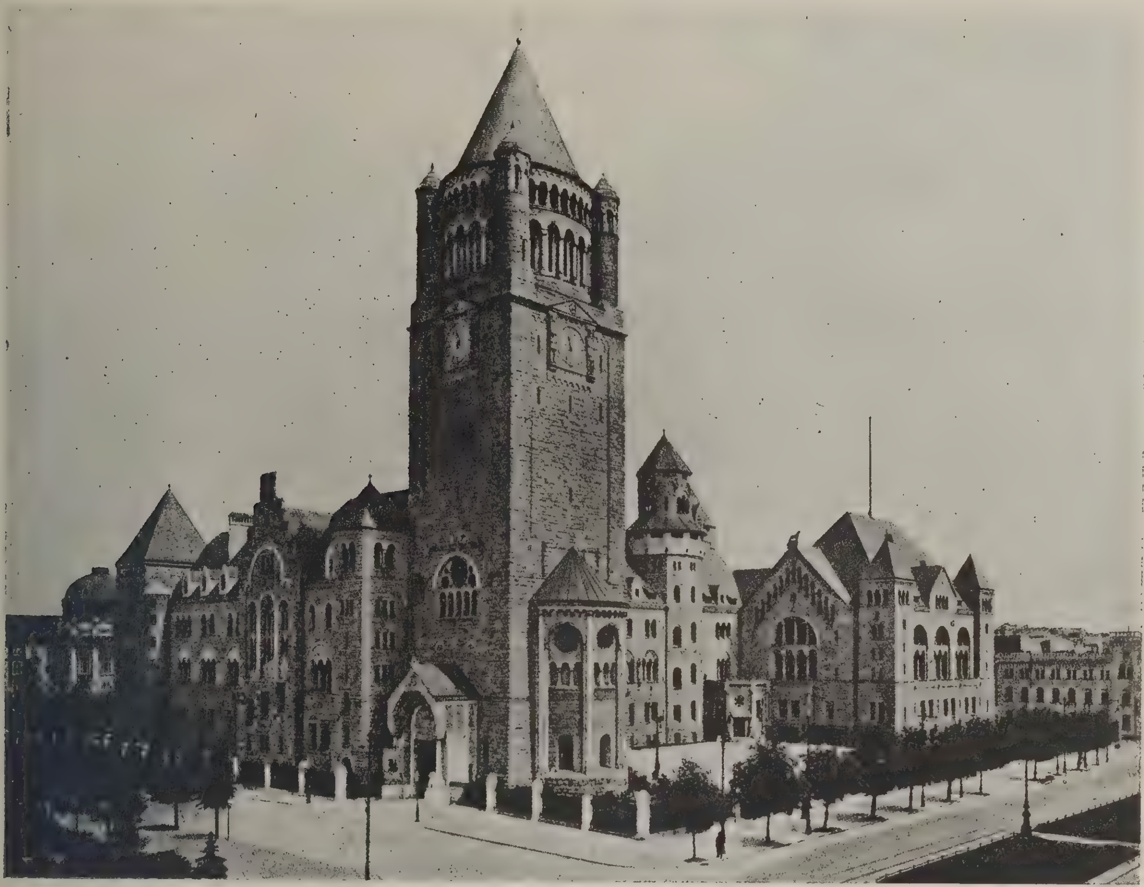


[From *Berliner Architekturwelt.*

ROYAL PALACE AT POSEN.—Herr **Franz Schwechten**, Architect.

ative values from the pecuniary point of view of a gas ich contains only 2 per cent. of vapour in its composition d a richer one containing, say, 6 per cent. He is apt to agine that he is getting more value for his money when machine delivers 1,000 odd feet of gas to the gallon of rol (since "air costs nothing") than if it only delivered) cubic feet. When petrol-gas first came into prominence reat deal was made in advertisements of the low cost per 00 cubic feet compared with coal-gas, so that an examina- n of the claim might not be out of place here.

From particulars kindly furnished by the Anglo- erican Oil Co. the author gathers that each cubic foot vapour from their "Anglo-Special 0.680" requires for plete combustion 45·5 cubic feet of air, and a gallon es 28·4 cubic feet of vapour. From this it will be seen t one can obtain 1,318 cubic feet of gas to the gallon of rit, and all for the comparatively small sum of 10*d*. l gas being sold in the country at an average price of ut 3*s*. 6*d*. per 1,000 feet, it is no wonder that gas managers an to wriggle when petrol gas first came on the scene. t the excessive cheapness was more apparent than real. Anglo-American Oil Co. give the calorific value of this rol at 19,500 to 20,000 B.T.U.'s per lb., or, taking the er figure, 132,000 B.T.U.'s per gallon. Hence the calorific ue of this gas, of which we get such a lot for 10*d*., is only t over the 100 B.T.U.'s per cubic foot, and gives a lighting ue when burnt of little over 5 candles per foot. Coal gas an average value of about 600 B.T.U.'s per cubic , and gives a lighting value of 20 candles per ic foot when burnt at low pressure with a mantle. Again, gas can be produced in the Mansfield apparatus at about per 1,000 cubic feet, an apparently high figure until is acquainted with the fact that it has a calorific value of 0 B.T.U.'s, and gives an efficiency of 40 to 50 candles cubic foot. From the foregoing it is obvious that the re simply of "so much a thousand" is utterly useless as index of the cost of any gas.

The only valuable advantage in making a very weak gas at an escape is immediately diluted down beyond the com- tible limit by the air it meets in the room. But there is no excuse for having any escapes, especially as—the specific gravity of the gas being over 1—little over half as much petrol gas as coal gas will escape through a given leak. No insurance company considers a coal-gas installation a menace from the insurance point of view, so that in the author's opinion there is very little value in this point, and certainly it is of no value as a set-off against a dangerous gas in the gasholder.

In the category of machines which rely upon hand regulation to keep the gas right the writer would include all machines using a "surface carburettor" in any shape or form, or machines in which the fuel is allowed to run into the carburettor by gravity through a hole the proportions of which are governed by a needle which more or less chokes the aperture.

As there are several machines of the surface carburettor type on the market, it might be as well, perhaps, to define the term. By a surface carburettor the author means one in which excess petrol is supplied by any float feed or similar device, and air is allowed to pass over it, picking up as much hydrocarbon as it can hold in the form of vapour. Sometimes this is passed straight on into the service and forms a very rich mixture, which is burned at Bunsen burners, or else it is diluted down to the self-burning mixture by some hand-regulated device (with which is usually arranged some attempt at an automatic control). Neither of these systems is, in the writer's opinion, satisfactory, as the amount of vapour which air will hold is governed by so many variable factors (time of contact, temperature, humidity, and, worst of all, selective evaporation, a factor which it is practically impossible to control.) In the case of the petrol feed through a hole choked by a needle the alterations of viscosity of the fuel have to be reckoned with, and where the needle is controlled by the height of a relief valve—when lights are reduced in number the gasholder raises the air exhaust valve and closes down the petrol supply by means of the needle—an adjustment is only reliable for a given speed of the engine.

There is another class of machine which uses a weak mixture because by so doing the latent heat of evaporation can be obtained from the air absorbing the vapour, and hence no heat has to be supplied from an outside source. If no heat is supplied other than that derived from the specific heat of the air and the liquid, a drop in temperature will result of about 28° C. and, unless the air is supplied at several degrees above zero, the temperature will drop below the saturation temperature of a self-burning mixture, and the air will not hold even the 2 per cent. of vapour necessary for such a mixture. A machine built upon these lines, therefore, must be doubtful in frosty weather, and anyhow the air has to pass through some drying agent in order to take out all moisture before it reaches the carburettor, or the latter will soon choke up with snow and ice.

One of the first essential considerations in the design of a petrol gas plant is that of the motive power to be used to drive the apparatus. In order that the drop in pressure due to the passage of the gas through the pipes may be, for practical purposes, negligible compared to the pressure at which the gas enters the mains (and that the pressure at each point should be sufficient in the case of a rich gas to enable it to inject the extra air necessary for complete combustion, or in the case of a mixture already of self-burning proportions to force it through the layers of gauze, &c., used to prevent flashing back) it is found in practice necessary to deliver the gas from the machine at between 1 in. and 2 in. of water column. Now a 40 c.p. unit may require a consumption in the case of a 6 per cent. gas of as much as 4 cubic feet an hour, or in the case of a self-burning mixture of 11 ft. an hour. The author is aware that these figures may be criticised by makers of petrol gas plant, so he would state at the outset that they are based upon experiments in a laboratory with machines of both types under ordinary running conditions. Now a pressure of 1 in. of water column is equivalent to 5·2 lb. per square foot, hence the energy required for a 40 c.p. unit consuming 4 ft. an hour at 1½ in. is $1·5 \times 5·2 \times 4 = 31·2$ ft. lb., and with a weak gas consuming 11 ft. an hour $1·5 \times 5·2 \times 11 = 85·8$ ft. lb., which reveals another advantage of the richer gas. Taking as a typical example a house in which there may be 50 lights all on at once, it will be seen that in one case an expenditure of 1560 ft. lb. is required and in the other 4290 ft. lb. for every hour's run. Hence petrol gas machines seldom require to be driven by anything more powerful than a hot-air motor or wound-up weights. In the author's opinion, the latter method is the more satisfactory of the two, for in a well-designed weight-driven apparatus the power expended is always proportional to the load from all lights on down to a small by-pass, and should all lights be turned out no power is wasted—the power coming into operation again immediately a light is turned on. In the case of an engine-driven plant it is necessary to run the engine continuously whatever the load, and should it be thought necessary to provide for an emergency during the night when in the ordinary way no light would be required, either the engine must be kept running with no load, or a gasholder must be introduced supplementary to the rest of the plant. With a consumption of 11 cubic feet per light per hour, it will be seen that the storage of any useful amount is out of the question.

The foregoing figures of the power required are purely theoretical, and as it is practically impossible to obtain an efficiency of more than 50 per cent. they should be at least doubled to obtain working figures. The writer unfortunately has no figures as to the efficiency of an engine-driven plant, but found that in one particular case the cost of running the engine of a 25-light plant the whole night on no load came to about 3*d*.

As one is continually being asked for comparisons with coal gas, the following information should be of value. It may be stated at once that such comparisons are never satisfactory to both parties concerned, as there is the inevitable difference of opinion as to what is the average efficiency which may fairly be assumed in each case. The difficulties of such comparisons will be obvious when it is pointed out that, according to how coal gas is burned, the duty obtainable from an incandescent mantle may vary from as low as 11 candles per foot to as high as 40 candles a foot or more, though the latter is only possible with special compressing apparatus. The writer was present at some photometric tests made by Messrs. Mansfield & Co., Ltd. (the well-known oil gas firm), with two different types of petrol gas apparatus. They were tested just as sent out by the makers, and as presumably they would be installed in a private house; that is to say, no special attempt was made to tune them up for the occasion, and the tests may consequently be considered as being made under quite average conditions. With rich petrol gas of 334 B.T.U.'s per cubic foot gross a duty of 11·6 candles per foot was obtained (or, to be exact, a 35 candle-power unit consumed 3 cubic feet an hour). Now with petrol of ·680 sp. gr. and calorific value of 19,500 B.T.U.'s per lb. we get a value of 132,600 B.T.U.'s for 10*d*. net (which is about the present price of spirit after rebate of the tax to the consumer), from which data it is easily calculated that we get 1,000 candle-power hours for 2·17*d*. Assuming an efficiency for coal gas of 20 candles per cubic foot (and the writer considers this a very fair average for low-pressure house lighting), with gas at 3*s*. per 1,000 cubic feet (again a fair figure) we get 1,000 candle-power hours for 1·8*d*. Hence, light for light, petrol gas in this particular case was equivalent to coal gas at $\frac{2·17}{1·8} \times 3s. = 3s.\ 7\frac{1}{2}d.$ per 1,000 cubic feet. It is interesting to note in support of the contention that these are fair comparisons that Professor Vivian Lewes, in the tenth edition of the Encyclopædia Britannica, vol. 31, p. 653, gives the price of 1,000 candle hours with coal gas at 3*s*. as 2¼*d*., and with petrol at 10*d*. per gallon as 2*d*.

Any attempt at competition with coal gas is very much handicapped in the case of petrol gas by the consideration of the initial cost of the plant. In view of the very large field outside the radius of any central coal gas or electric lighting scheme one would not expect makers of petrol gas plant to spend time and money on such competition. Their chief rivals are acetylene firms and makers of private electric lighting plants. It is interesting to note that from figures given in a pamphlet issued by one of the best-known acetylene firms the price per 1,000 candle-power hours from acetylene works out at 6·25*d*.; or, light for light, three times the cost of petrol gas. The author has no reliable figures for the cost of light generated by a self-contained electric set, but the initial cost of a sound apparatus is very heavy compared with that of a petrol gas plant, whilst there is the disadvantage of not being able to use it for the ordinary domestic purposes of cooking and heating except at a ruinous figure.

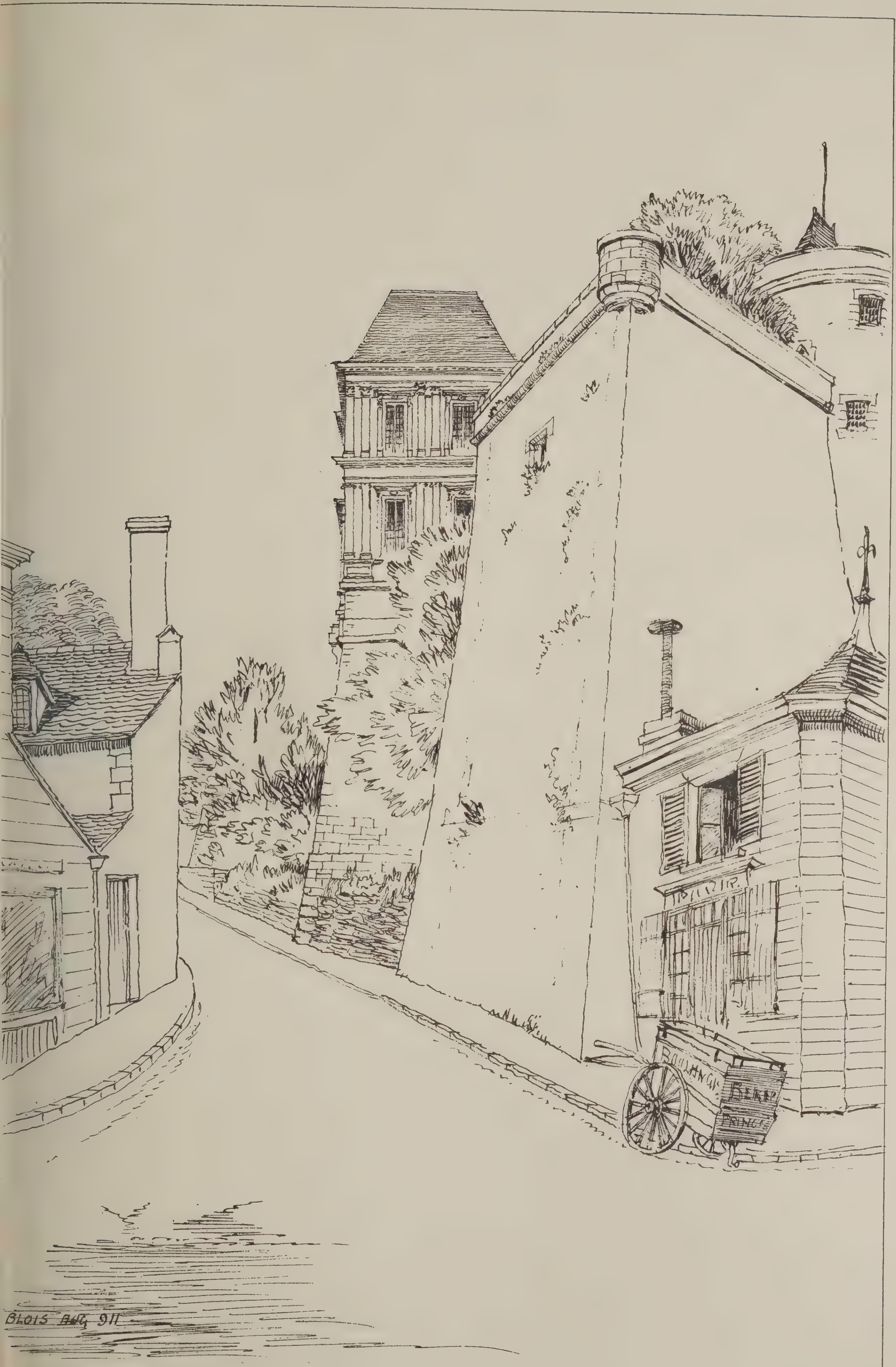
This paper refers exclusively to the principles of petro air-gas lighting, and no detailed examination has been made of the different methods of its generation. It should be realised, however, that the design and construction of machine are factors quite as important as is the fulfilment o the consideration here dealt with.

The difficulties in the path of the designer will be realise when it is pointed out that in an ideal plant a gas of unvarying calorific value and unvarying pressure has to be produce automatically to meet a demand varying from full load dow to a mere by-pass under conditions of temperature varyin within quite wide limits, and that this has to be effected wit a fuel which, in its physical relationship to air, is peculiarl sensitive to these same everchanging factors of velocity an temperature. Moreover, it must be remembered that th apparatus must be such that it can be left in the hands any unskilled person, such as a domestic servant or a ga dener, and must therefore be "fool-proof" and never nee attention other than that involved in ordinary routine work Worst of all, a gas can be obtained by anyone by blowin air across petroleum spirit on its way to a burner with th consequence that all manner of unscientific persons a tempted into the field, the only result of whose labou is the loss of money and the "queering of the pitch" f firms running machines of sound construction and desig which are necessarily the result of prolonged study a investigation. Is it any wonder then that the history petrol air-gas is strewn with the corpses of unsuccessf undertakings?

It is to be hoped that purchasers will gradually realise t folly of believing all that they are told about petrol air-g machines, and that they may be induced to obtain the servic of an engineer to help them in the important choice of reliable system, for this is the surest way of escaping the di appointment of finding themselves saddled with an install tion which will cause them perpetual worry. There is more satisfactory illuminant than that supplied by a go petrol-gas plant, but there is no greater source of irritati than the constant blackening or dimming of mantles and t necessity for frequent readjustments of the machine, as the case of some systems at present on the market.

COMPETITION NEWS.

LITTLE CLACTON.—A new Council School is proposed to erected at Little Clacton, Essex. Competitive designs ha been submitted to the committee, who have decided to acce those sent in by Messrs. Tomkins, Homer & Ley, of 2 Bishopsgate, E.C., and Frinton-on-Sea, and appointed th architects for the new buildings.



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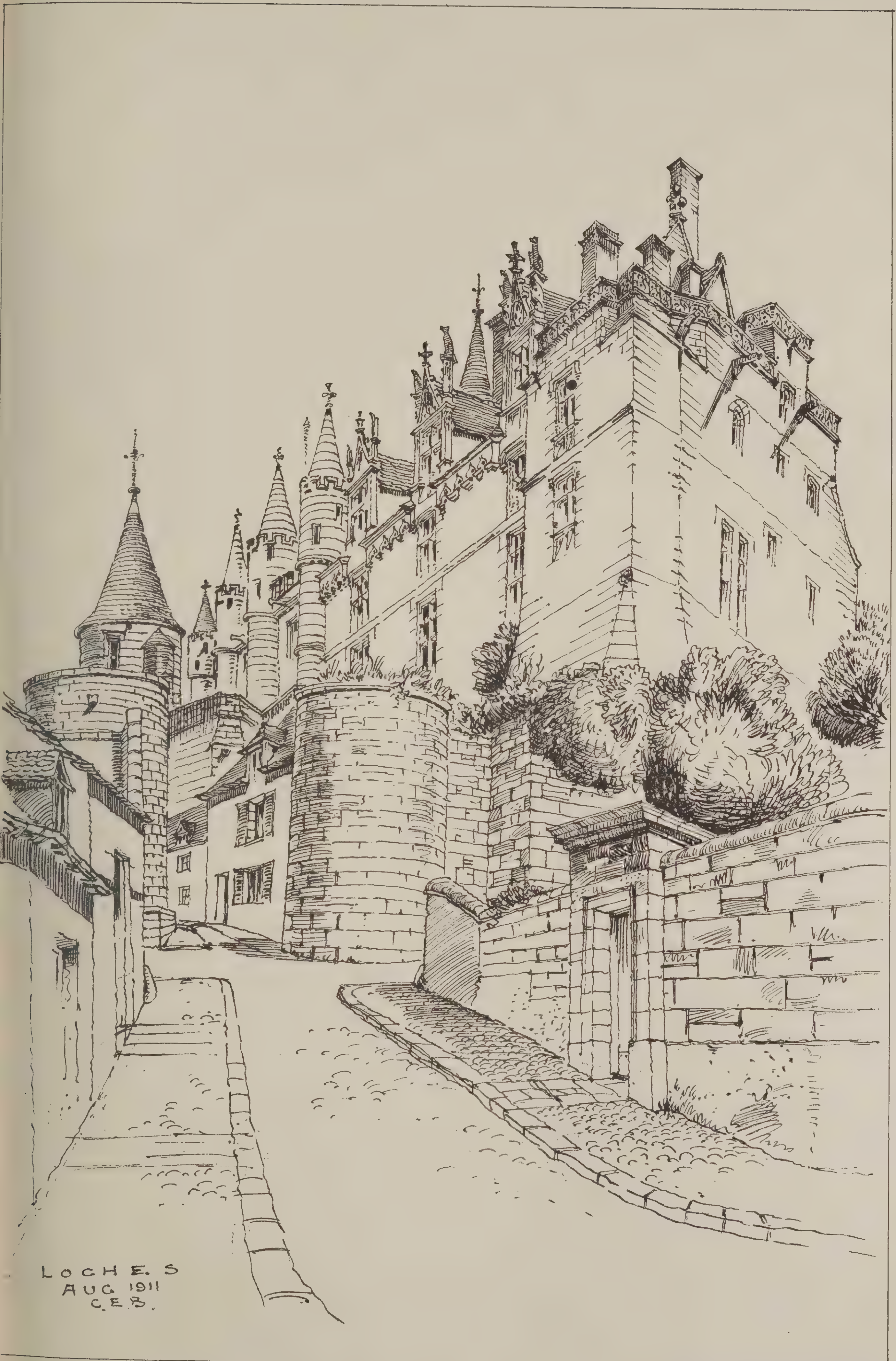

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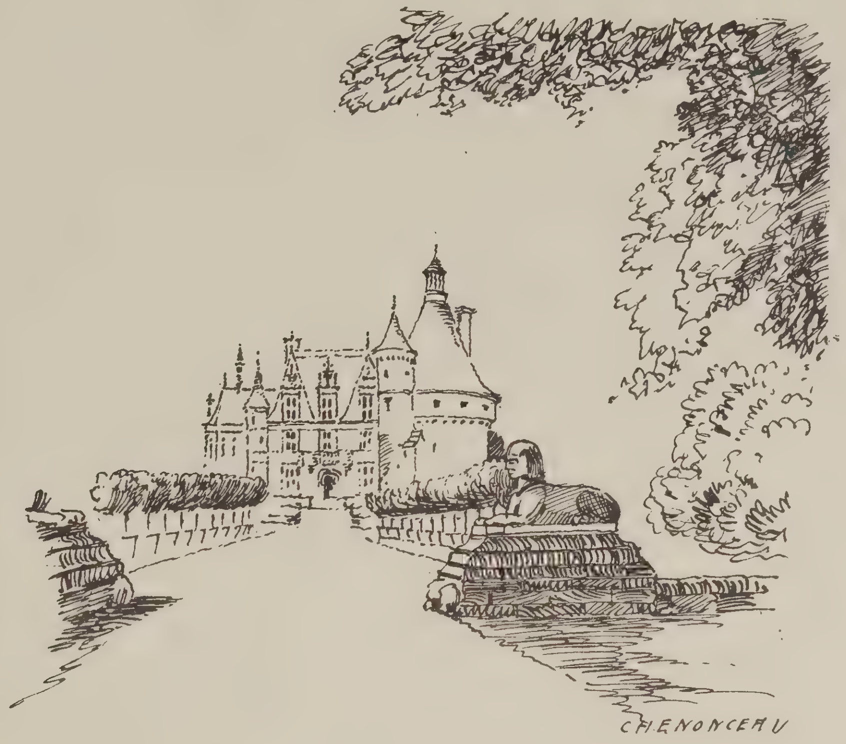

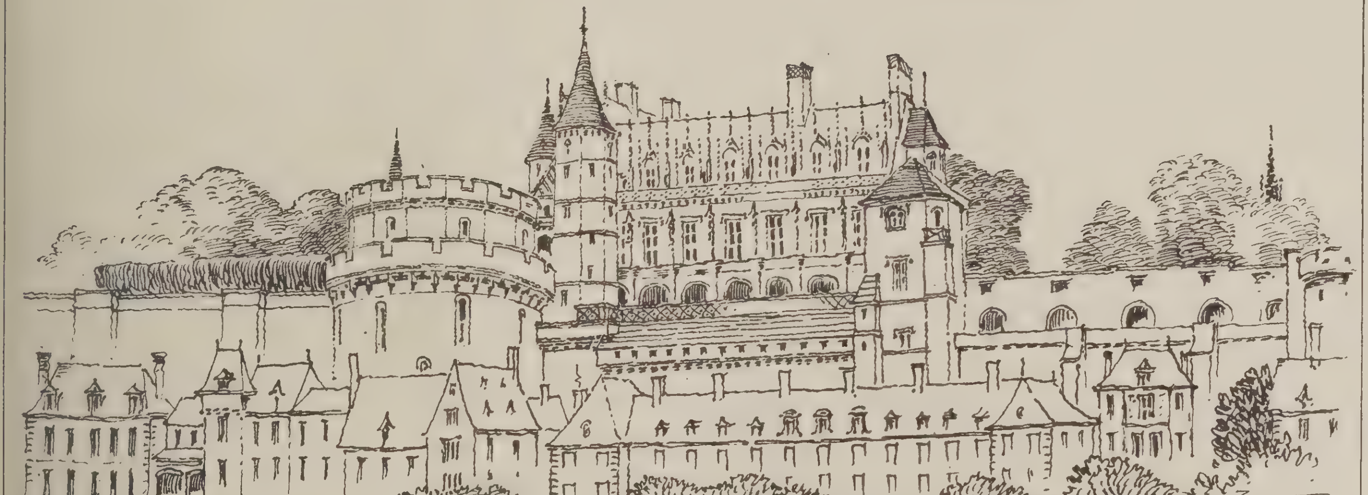

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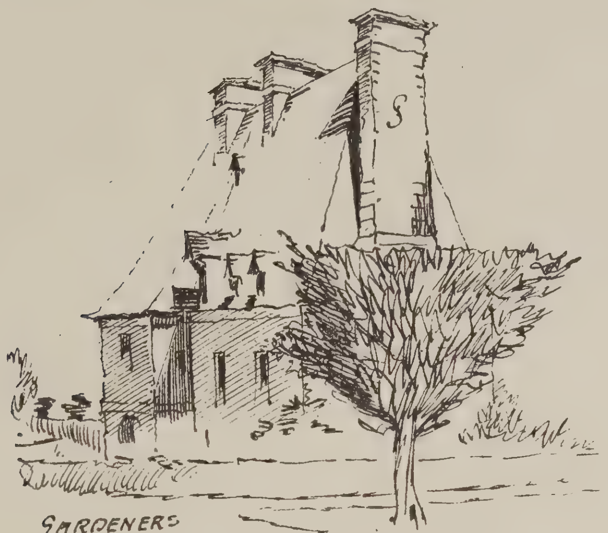
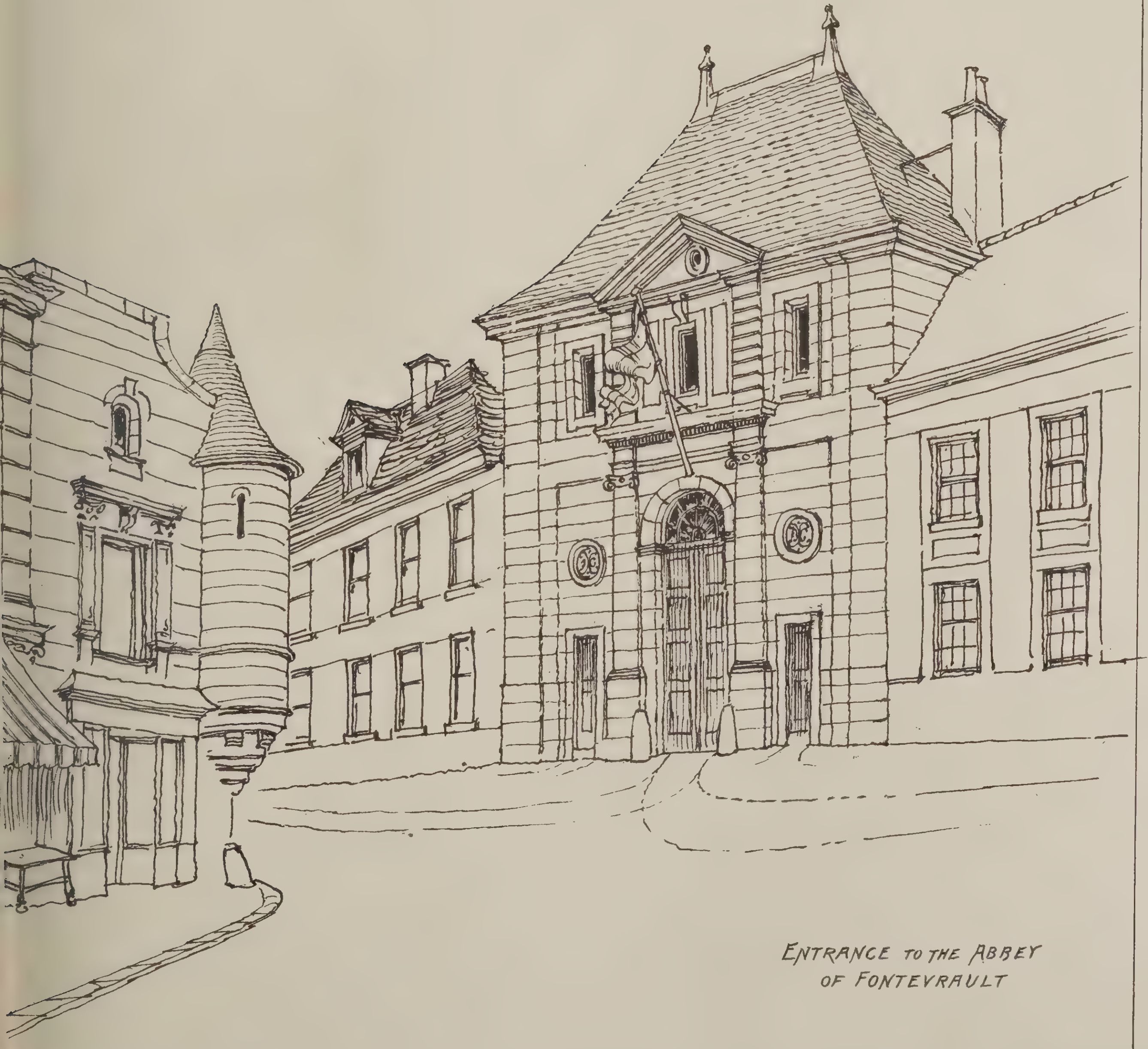


GARDENERS
COTTAGE
CHENONCEAU



ENTRANCE TO THE ABBEY
OF FONTEVRAULT

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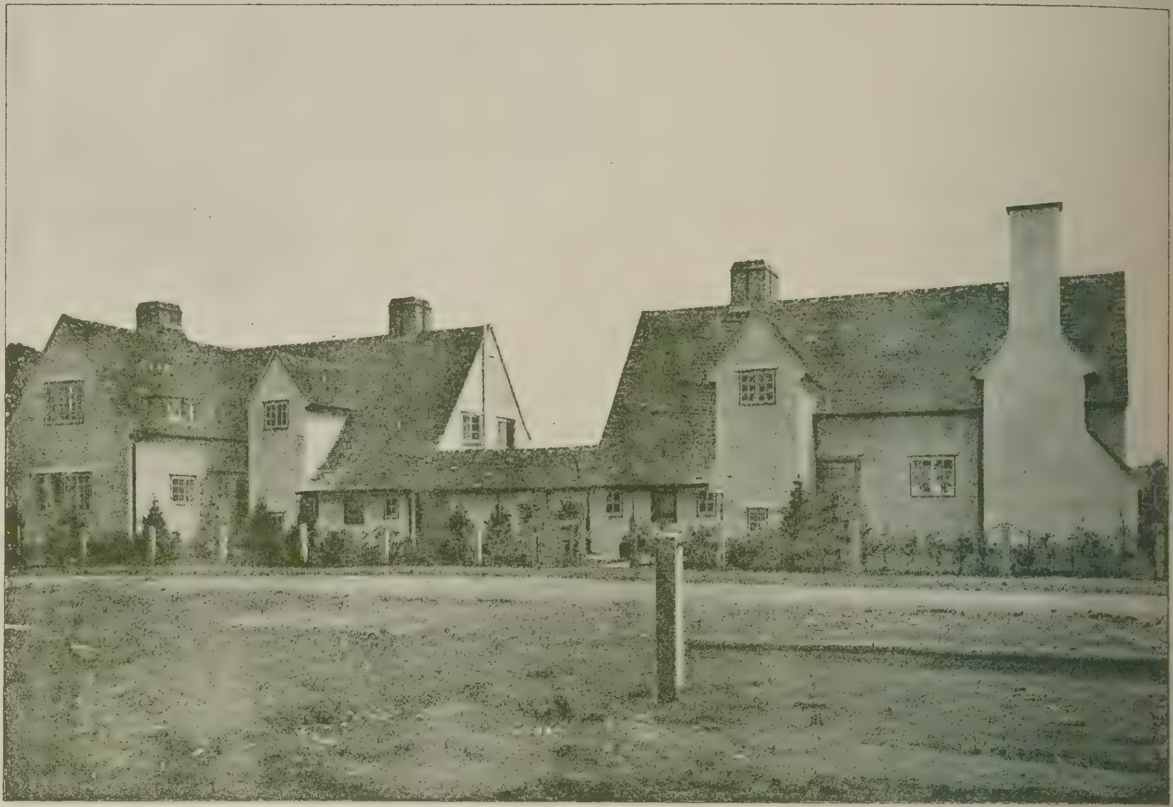
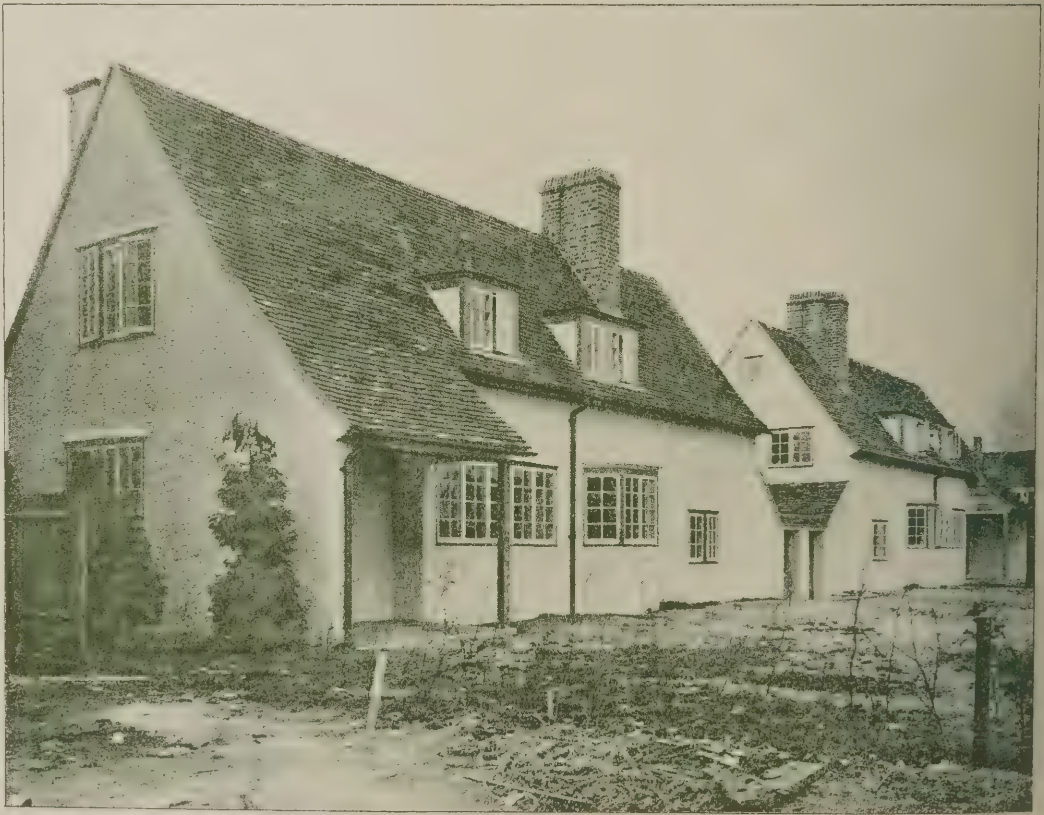


Nos. 232 and 231 REED POND WALK

Mr. M. H. BAILLIE SCOTT, Architect.



Nos. 232 and 231 REED POND WALK.

Mr. M. H. BAILLIE SCOTT, Architect.

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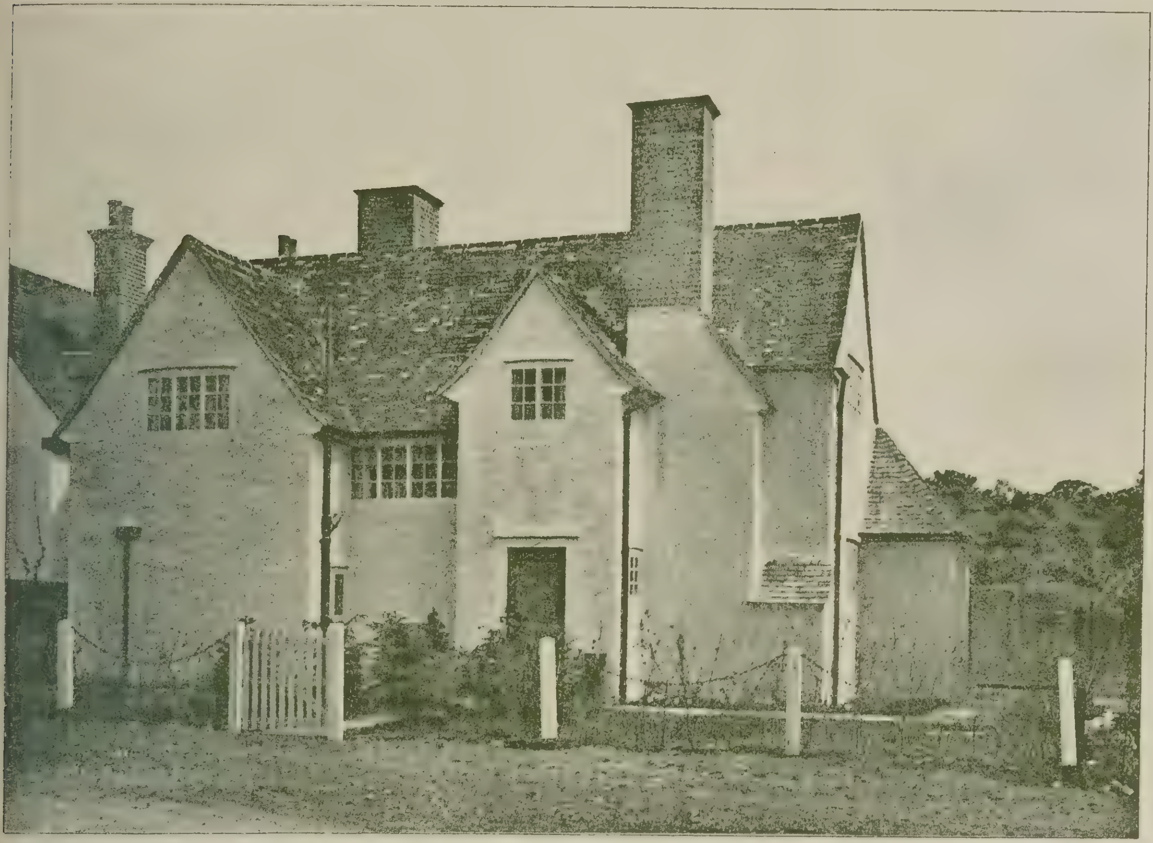
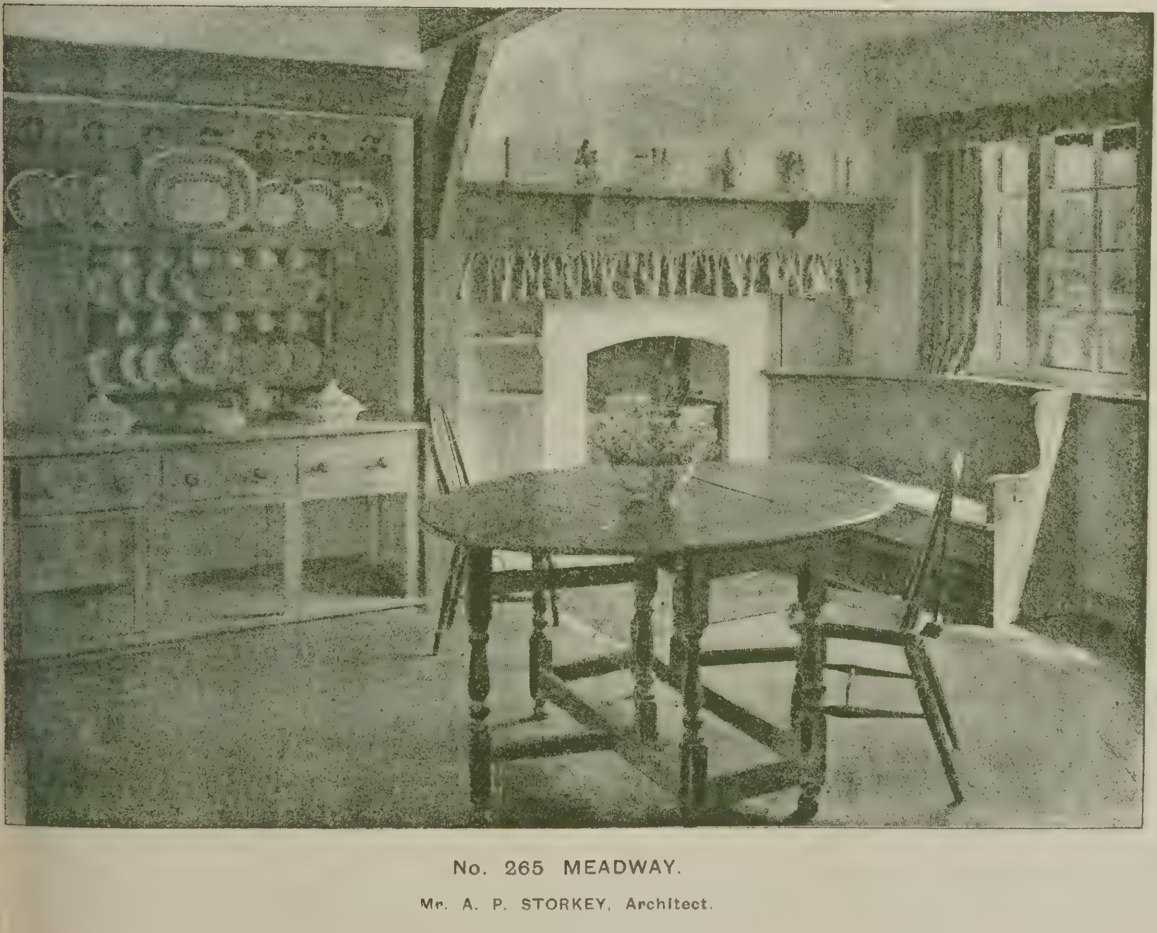


No. 265 MEADWAY.

Mr. A. P. STORKEY, Architect.



No. 265 MEADWAY.

Mr. A. P. STORKEY, Architect.

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The Architect.

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FORTHCOMING EVENTS.

Saturday, September 23.

Architectural Association : Camera, Sketch and Debate Club Visit to City Churches (London).

Northern Architectural Association : Visit to Stella Hall and Axwell Park.

Monday, September 25.

Architectural Association : Day and Evening Schools of Architecture re-open. Opening Evening Meeting with Exhibition of Students' Work and Address by Professor Beresford Pite on "Architectural Education" at 6.15 P.M.

Saturday, September 30.

Institution of Municipal and County Engineers : South-Western District Meeting at Paignton.

Guild of Architects' Assistants : Visit to St. Andrew's Hospital, Dollis Hill Lane, Cricklewood (Mr. R. L. Curtis, architect).

CEILINGS AND THEIR DECORATION.

TO decorate the ceiling has been the almost universal desire, or shall we say instinct, of nearly every epoch in building. Even when the art of architecture was at its lowest level in the early nineteenth century, the flat plaster ceiling was considered incomplete without a "rose" or centre piece, the survival of the typical schemes of ceiling decoration in delicate plaster work of the eighteenth century "Adam style." The hideous monstrosity of design to which these centre pieces descended led naturally to their omission, and the ceiling became a desert waste of flat plaster, decorated only by the inevitable cracks produced by the deflection and shrinkage of the floor joists above.

Hence we arrived at the state of things against which Charles Reade led a vigorous crusade, and in his "Builders' Blunders" speaks of "standing on the first floor of the thing they call a house, with a blunder under my feet—unvarnished, unjointed boards, and a blunder over my head—the oppressive, glaring, plaster ceiling, full of its inevitable cracks, and foul with the smoke of only three months' gas." This "plaster ceiling," he adds, "may pass with London builders for a venerable antiquity that nothing can disturb, but to scholars it is an unhappy novelty, and, in its present form, inexcusable. It was invented in a tawdry age as a vehicle for florid ornamentation; but what excuse can there be for a *plain* plaster ceiling? Count the objections to it in a kitchen: (1) A kitchen is a low room, and the ceiling makes it nine inches lower; (2) white is a glaring colour, and a white ceiling makes a low room look lower; (3) this kitchen ceiling is dirty after a month's wear, and filthy in three months, with the smoke of gas, and it is a thing the servants cannot clean; (4) you cannot hang things on it. Now change all this : lay out the prime cost of the ceiling, and a small part of its yearly cost, in finishing your joists and boards to receive varnish, and in varnishing them with three coats of copal. Your low room is now nine inches higher, and looks three feet. You can put in hooks and staples galore, and make the roof of this business room useful; it is in colour a pale amber at starting, which is better for the human eye than the white glare, and, instead of getting uglier every day, as the plaster ceiling does, it improves every month, every year, every decade, every century. Clean deal, under varnish, acquires in a few years a beauty oak can never attain to."

With everything in this diatribe we can hardly agree. The plaster ceiling has one great practical advantage—it prevents every footstep in an upper room being heard in that below. Nor do we think a varnished surface, with its troublesome and poignant reflections, the best treatment for a ceiling.

Still, the main point is sound, that decoration is desirable for a ceiling. Of how this has been carried out in the past, we have a succinct account in a recently published work in the House Decoration series by Mr. Guy Cadogan Rothery,* who traces the historical development of ceiling treatment from the days of primeval man to the present time.

The methods of ceiling decoration employed by the Egyptians, the Assyrians, the Greeks, and the Romans are described in detail, as regards form, material, colour, and ornament. From these have come, with a growth of elaboration and variation of detail, but virtually no introduction of fresh motifs, the whole of the richly treated ceilings of the Renaissance. Of entirely different conception are the ceilings of Mohammedan architecture, Arabesque, Mauresque, or Saracenic, as to which we cannot follow the author in his adoption of the view that these were produced from Byzantine art. Of Mauresque or Saracenic art he tells us that "It is said to have been derived from the Byzantine, being a surface style built up of fragments, prisms replacing the small cubes of the artists in mosaic." It needs a vivid imagination to derive the stalactitic vaults of the Alhambra from the simple dignity of the domes of Santa Sophia. Prisms have taken the place of cubes. But these latter did not appear as cubes; they may not have been cubes. They merely show the face of a cube, and are as much flat, or rather plane, surfaces as if the decoration they form were executed in paint.

There is a tendency in our author to adopt the late German idea of a vegetable origin for Gothic architecture. He finds "in early Gothic an underlying feeling that the forest provides the best building material." Literally this was true, but for the early mediæval builder the best building material he could find was below the surface, as in the Forest of Dean. The characteristic of woodwork "in early Gothic" is that it is masonry in timber. To the lay mind there may be a fascinating analogy between the soaring pillars and vaulting shafts leading to the ribbed vault and the interlacing boughs of a fine avenue of well-upstanding timber trees. But the analogy is merely superficial.

When, however, Mr. Rothery directs his readers' attention to the universality of colour decoration in mediæval architecture, he is on surer ground, and he does well to emphasise the brilliancy of colouring and the boldness of contrast that characterise mediæval decoration. We must remember that heraldry was in the middle ages a living art and science, and that the primal object of heraldry was that one man's coat might be easily and unmistakably distinguished from another man's coat. This is the reason for the fundamental law of metal on tincture and tincture on metal, and for the preferential use of primary colours. Hence the use of brilliant, we might almost, from our modern point of view, say crude, schemes of colouring and the avoidance of tertiary tints till quite late in the mediæval period.

Our author is very severe on the work of the Brothers

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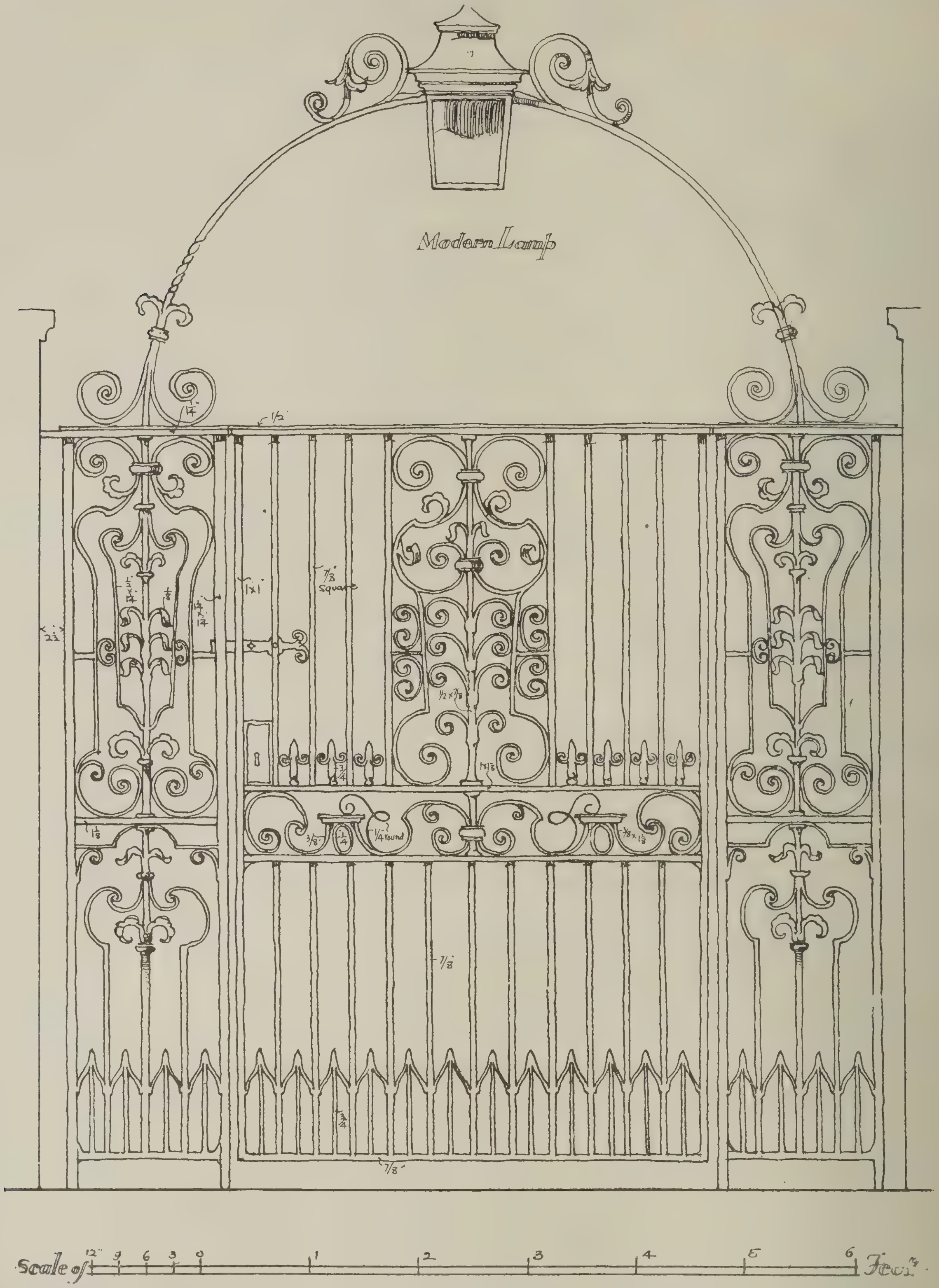
* *Ceilings and their Decoration.* By Guy Cadogan Rothery (London : T. Werner Laurie. 6*s.* net.)

" THE ARCHITECT " STUDENTS' SKETCHING AND MEASURING CLUB.



WROUGHT-IRON ENTRANCE GATE, THE TREASURER'S HOUSE, YORK.—Measured and drawn by "L'Quayt."

The accompanying illustration is of a fine eighteenth-century wrought-iron gate to the Treasurer's House, York. It leads from the road at the north-east of the Minster to the beautiful formal garden. The craftsmanship of the gate with its standards is very good and quite up to the standard of the more elaborate examples. The centre panel is beautifully designed and the whole composition and detail is a fine example of the logical treatment of wrought iron.

Adam, "who came within measurable distance of the brick box with cheap stereotyped classical ornamentation stuck on in the manner and style of pink and white cake decoration." It is the Italian colour of the Cinquecento and earlier period that meets with his approval. He, however, quite rightly, we think, points out the incongruity of the elaborate ceiling picture, for the full enjoyment of which "man must abrogate the dignity of his erect position, to lie flat on his back, or otherwise risk dislocation of his neck; in either case, scarcely conducing to a proper frame of mind for the appreciation of a work of art. Moreover, all such crowded compositions, with heavy architecture, restive chargers trampling over terra firma, impress the unreality too obtrusively on the mind. Admire them though we may as the fine productions of masters, they are examples to be eschewed as dangerous to all but giants, and adding little even to their credit."

Amongst the many excellent, though small, illustrations given in the book, mostly of Renaissance examples, we have in the Loggia of Psyche, of the Palazzo Farnese, a striking illustration of the infelicitous ceiling picture on the flat, with a lesson as to where figure subjects are

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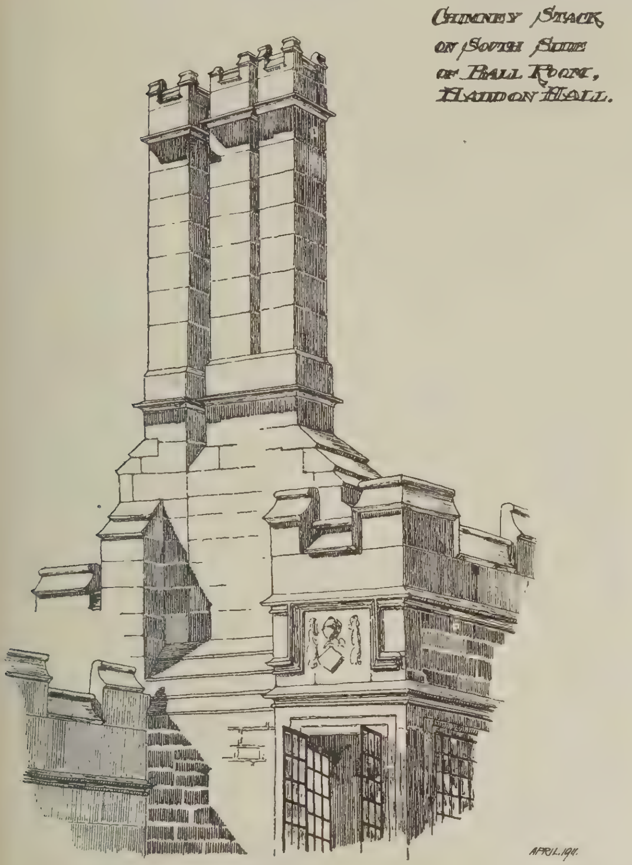

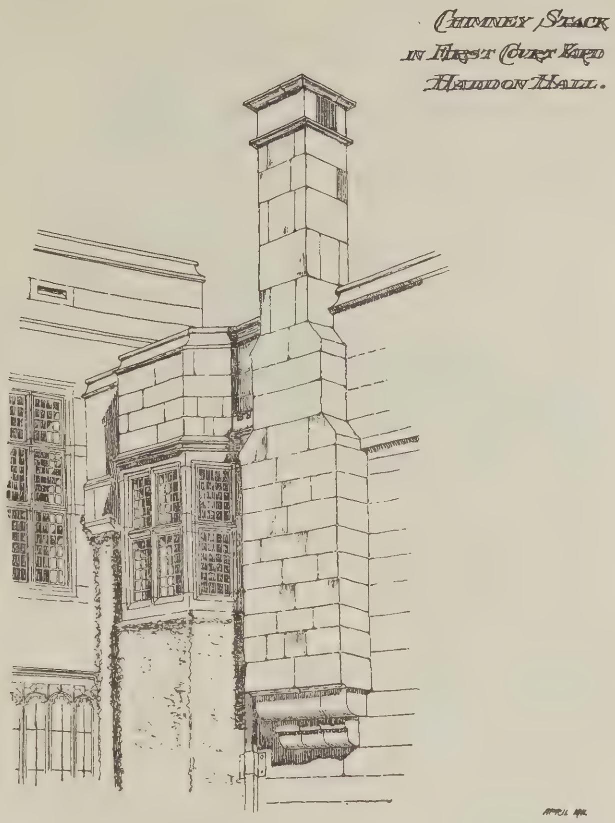
Chimney Stack
in First Court Yard
Haddon Hall.
April 1911.

From Drawings by E H. Gibson.

Haddon Hall consists of two courtyards (upper and lower), around which are grouped various buildings. To the right is the chapel, to the left the banqueting hall. Haddon Hall dates back to Norman times. The hall porch, part of the north-east tower, &c., date from about 1300 to 1380. Between 1380 and 1470 some portions were added to the chapel and the remaining buildings on the east side of the upper courtyard were erected. Between 1470 and 1530 the western range of buildings in the lower courtyard and the west end of the north range were built. The buildings contain many fine examples of oak panelling and plaster decoration.

satisfactory in ceiling decoration, that is, in the deep coving which leads up to the flat.

Timber roofs and wooden ceilings and the use of plaster work form separate chapters in the book which help in the completeness with which the author has dealt with his subject, in a pleasant, chatty style, and imparted much information which will be interesting to the amateur and useful to the professional artist.

NOTES AND COMMENTS.

We fear there is a little bit of the "old master" dodge about the Tattershall Castle fireplaces. Who would give £3,000 for four fireplaces except on the "old master" basis? The castle and land, without the fireplaces, is going for £2,000; with them, £5,000 is the price. It is very good of Sir Henry Francis Trippel and the National Trust to step forward and save the fireplaces, but is not the price a bit inflated compared with the £8,000 for which the French Government bought Azay-le-Rideau? All the same, the episode of Tattershall shows the importance of the speedy completion of the work of the Royal Commission on Ancient Monuments and its necessary sequel, an Act of Parliament scheduling the historic monuments of our country and providing for their acquisition by the nation at a price to be fixed by valuation or otherwise for their preservation.

The latest fact about the Tattershall fireplaces seems to be that they are so much damaged by the ruthless way in which they have been torn from their setting and mishandled that their value as historic monuments is lamentably diminished, so they are not likely to fetch "old master" prices.

The old chapel of St. James, at Murton, near York, is one of the ancient monuments that had by wanton vandalism descended to fulfilling the purpose of a stable and cow-byre; but we are glad to learn from the *Yorkshire Post* that it has been rescued from that degradation, and that an effort is now being made, with the assistance of the Archbishop, the Dean of York, and Lord Halifax, to restore it to its ancient religious uses. The history of the chapel is full of interest, and it seems difficult to conceive that its interest was so imperfectly known, and its local importance so little appreciated, as to permit of its desecration within the last seventy-five years. It is not even a case, as was once wittily remarked by an eminent antiquary, of "destroying something in his memory," as has been frequently the case in York antiquities. The chapel is situated at Murton, a fairly populous portion of the united parish of Osbaldwick and Murton, lying some three miles to the north-east of York. The village takes its name from Osbald, one of the Northumbrian kings (793), who, after a reign of twenty-seven days, retired to Lindisfarne, at the solicitation of his friend, the famous Alcuin. Subsequently Alcuin's "sweetest friend," became an Abbot in Yorkshire, and was buried in the Minster at York. From an entry in Domesday Book, it is believed that he left his lands in Osbaldwick, three-fourths of the parish, to the priests of the Minster, on condition of supplying the spiritual needs of the parish. Chapels were built at both Osbaldwick and Murton in the twelfth century, and were chantries of Strensall, the prebendary of the latter being Lord of the Manor. In 1485 Dr. Poteman, prebendary of Strensall, formed the two chantries into a vicarage, and early in the sixteenth century his successor charged certain copyhold lands with a yearly payment of 11*s.* 8*d.* for the repair of the chapel at Murton.

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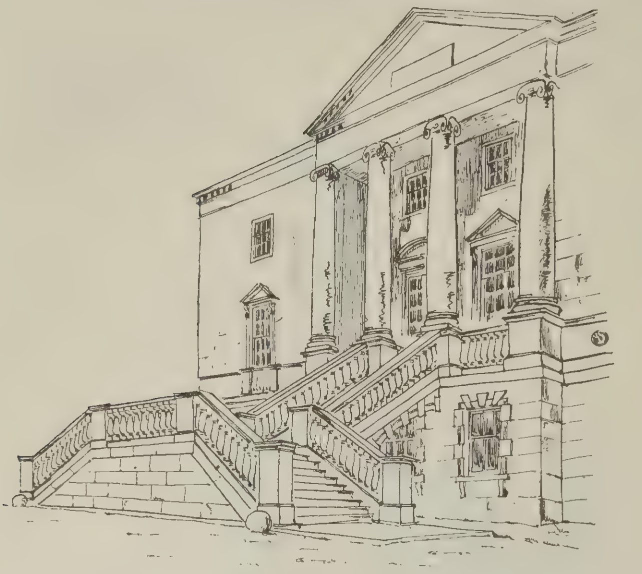

STEPS AT CONSTABLE BURTON, YORKSHIRE.
From a Drawing by Mr. E. H. Gibson.

Constable Burton, Yorkshire, is a building in the Palladian style, erected during the latter half of the 18th century, and was designed by John Carr, of York. He built most of the houses of any importance that were erected during this period. Amongst his works are Harewood House, Denton Park, Aston Hall, &c. The steps shown in the sketch are well proportioned, and the bridge-like treatment of the upper flight gives a good effect.

The growth of municipal administrative work is unceasing, and Leeds now finds that it has outgrown its present official accommodation. So, at a recent meeting of the City Council the following resolution, moved by the Lord Mayor, was adopted: "That in view of the urgent necessity of providing additional municipal accommodation, a committee be appointed to consider this question, and the adaptability of sites belonging to the Corporation for the purpose." The matter, he said, had been brought to his mind most forcibly within the last two or three months by two or three facts. In the first place, there had been a repetition of complaints as to the lack of suitable accommodation within the Town Hall for the administration of justice, not only with regard to Assize times, though especially then, but also in regard to other occasions. Further, at the annual inspection of the police force, the Inspector made a statement regarding complaints which had been brought to the attention of the Council of the lack of suitable accommodation at the Town Hall. The Inspector spoke more strongly upon the matter than ever before, pointing out the danger the Corporation ran in regard to its financial position unless better accommodation was provided. Another fact was the office accommodation of various Corporation departments. The Town Clerk's department was suffering severely, as were also other departments, and the matter had reached a stage when an inquiry would be a very wise step.

We do learn some wonderful things sometimes about building from the non-technical Press, especially in the provinces. For example, the general public is gravely informed that in Japan the building methods are just the opposite to ours and the roof is the first part of a house that is finished. As the Japanese house, of the older type, consists of nothing permanent except the roof and its supports, it is hardly wonderful if the roof is finished first. We suppose our contemporaries do not imagine that a Japanese roof is like Mahomet's coffin. And so how is it different from ours? Our roofs (and their supports) are the first parts of a house to be finished.

Another lovely wheeze. Mr. J. D. Rockefeller, the Standard Oil King (for fear we should not know the name), was minded to build a new wing to his house. His ingenuity is proved by the model he had constructed lately of the new wing. This model he made of wood, and placed upon a turn-table on the spot where he intended to build. Ingeniously arranged mechanism made it possible for Mr. Rockefeller, when seated in this box-like affair, to turn it about by means of levers. After much experimenting, he composed a time-table. This was the result of many days spent in the temporary structure. By the time the table was completed, Mr. Rockefeller learned when the sun would shine in each room. When he had completed his calculations, he turned the time-table over to the architects and told them to "go ahead." The time-table was based upon Mr. Rockefeller's daily scheme of life. For instance, he wanted light in the dining-room in the morning and at noon. The only time he insisted upon having light in his office was between two and three o'clock in the afternoon. He wanted his own bedroom dark between three and four o'clock in the afternoon, the hour in which he takes his daily nap after completion of his business in the office. If Mr. Rockefeller had applied to an English architect he might have had his house designed to give each room the light he wanted at any hour of the day without the expense of the model. But perhaps the Oil King wanted something to play with.

ADDITIONS TO THE VICTORIA AND ALBERT MUSEUM COLLECTIONS.

A NEW era may be said to have commenced with the old South Kensington Museum when, in June 1909, the new galleries for the art collections were opened by King Edward VII. As it now stands, the Victoria and Albert Museum is, in point of size, the largest existing institution of its kind in Europe or America. With the exception of the Louvre, no other museum approaches it in actual space covered. It is, therefore, a fitting decision of the Board of Education that after the year 1908-9 the annual report should be issued as a separate volume. As a matter of fact, a report was not published at all in the following year. Consequently the report just issued covers two eventful years in the history of the Museum.

Of particular interest to our readers will be the statement as to the progress made in the Department of Architecture and Sculpture.

Since the publication of the last report, in 1909, the Sculpture Section has been completely rearranged, and is now known as the Department of Architecture and Sculpture.

The Committee of Rearrangement had assigned the following rooms and halls to this department: The East and West Halls, the East Court, the Architectural Court, the three easternmost rooms facing the Brompton Road on the ground floor, and the three corresponding rooms on the lower ground floor, and the old Ceramic Gallery on the first floor the old building. This space was afterwards considerably curtailed. The old Ceramic Gallery was found to be unsuitable, the East Court was required for another purpose, and the passage between the two halves of the Cast Court was assigned provisionally to the Woodwork Department, as no other place was available for the carriages, sedan-chairs, and sleighs. This corridor is still occupied by these objects.

The collection of Italian sculpture, formerly in the North Court, has been placed in rooms Nos. 62 to 64 on the ground floor to the east of the main entrance; it has been chronologically arranged to illustrate as far as possible the development or the art from the thirteenth to the seventeenth century. In the first room on the east wall may be seen work ascribed to the Pisani and their contemporaries; the rest of the room contains examples of the Florentine school of the fifteenth century. In the middle room are the works of the Della Robbia family. The third room is devoted to later Florentine work and to sculpture from other parts of Italy.

The specimens of Italian, Spanish, Flemish, and French architecture, also mainly from the North Court, have been erected in the large East Hall, No. 50. The Florentine examples have been placed at the end of the hall on the east side of the bridge. To the west of the bridge in the next section of the hall are a series of doorways, those on the south wall being from Gubbio and Urbino, while those on the north wall are from Genoa. In the next section the south wall is occupied with North Italian architecture and sculpture, several of the examples being Venetian. On the north side of the section are arranged a great painted altar-piece from Valencia and specimens of Flemish and French architecture and sculpture.

The arrangement of the objects in the large West Hall, No. 48, was to some extent delayed by the fact that most of the space in that hall was required for the opening ceremony in July 1909, but considerable progress in the arrangement has since been made. The easternmost of the three sections into which it may be divided has been devoted in the main to English architecture, the westernmost to architecture and architectural fragments of a Saracenic character, leading up to the great Hispano-Moresque ceiling from Torrijos erected in the apse. One wall of the central section—in which it is now proposed to set up the doorways from Great George Street and Delahay Street (presented by H.M. Office of Works), the English stone and marble chimney-pieces, and other objects of architectural interest—is at present occupied by three large altar-pieces, German and Flemish work of the late fifteenth and early sixteenth centuries. It was not at first considered desirable to place these with other work of the same period in Room 10, owing to their size; but it is now proposed to find a position for them there in connection with the general rearrangement of the three basement rooms, 8, 9, and 10. In the original scheme for the rearrangement of the collection it was designed to keep these rooms, which are on the lower ground floor to the east of the main entrance, as a reserve for laying out and repairing any work in this department, and to open them only in special circumstances. Owing, however, to the reduced space now available for this department, as explained above, it has been found necessary to use these three rooms for the exhibition of the French, English, Spanish, Flemish, and German sculpture. The French sculpture is at present exhibited in the first room, the English and Spanish in the second room, and the German and Flemish in the last room.

The Architectural Court (Nos. 46*a*, 46*b*), mainly devoted to the collection of plaster casts, was closed to the public during the greater part of the year 1909, as the contents were considerably disarranged owing to the removal to the East Hall (No. 50) of certain large original exhibits (among which may be mentioned the portion of the old oak front of Sir Paul Pindar's house) and to the consequent repairs to the walls. The eastern half, containing for the most part casts of Italian sculpture, was reopened to the public in the spring of 1910, and is much used by students engaged in making measured drawings of architectural work.

The withdrawal of such objects of the Salting Bequest as were formerly in the Department of Architecture to separate rooms in the Museum left vacant the central section of the East Hall which they had previously occupied, and their place will be filled with Italian architectural details. But, in consequence of the strong light reflected from all sides in the East Hall, and particularly from the white floor, comparatively few of the objects of a purely sculptural character placed there can be seen to their best effect.

Several classes of objects of minor importance remain as yet unexhibited; among other specimens these include examples of Coptic stone work, some of which are of considerable importance. The present arrangements for the lighting and exhibition of the ivories in Room 109, the gallery at the south end of the South Court, will require further consideration.

Owing to the size of most of the exhibits in the Department of Architecture, students have in almost all cases to work at them *in situ*; for the present, therefore, it has not been found necessary to allot a special students' room to this Department.

The objects most studied are the English architectural exhibits in the West Hall and the casts of English and French Gothic architecture in the Square Court. The almost continual presence of some form of scaffolding in front of particular exhibits is a certain inconvenience to the general public; but it is pointed out that any attempt to limit the use of scaffolds to Students' Days might cause very serious difficulty to students actually employed in architects' offices or elsewhere, who are often unable to work in the Museum except on Saturday afternoon and on the open evenings.

New objects are in almost every case labelled as soon as they are placed on exhibition; and the old labels are constantly being revised in the light of recent research. The whole of the Italian sculpture was relabelled with revised typewritten labels during the rearrangement.

Progress has been made with the cleaning of a number of stone and marble exhibits that had become incrusted with dirt through long exposure to the London atmosphere.

The need of authoritative and fully illustrated catalogues of the various sections of the departments is fully recognised; this applies especially to the section of Italian sculpture, where further additions of great relative importance are not likely to be made. Material for this purpose is being collected.

The department altogether acquired 14 objects in 1909 and 51 in 1910, exclusive of the Salting Bequest.

Mr. J. H. Fitzhenry presented a handsome wooden staircase (exhibited at the entrance to the West Hall) from a house at Morlaix in Brittany; French work of about 1500 (A8-1909). This fine stair, which must have stood in the corner of a courtyard, is spiral in form, and has galleries and landings for three floors. According to the report, the principal feature is a tall column, elaborately carved with figures, shields, leaf-work and imbricated ornament, and surmounted by a statuette of St. John the Baptist; the balustrades springing from this column have linen-fold panelling. This interesting type of staircase is apparently peculiar to the town of Morlaix. Mr. Fitzhenry also presented a well-head of orange-coloured marble, dating from the first half of the 15th century, bearing on one of the sides the arms of the Concoreggio family of Verona (A9-1909)—this fine and unusually large well-head stood formerly in the courtyard of the Saladini-Moreschi Palace at Verona, now converted into a bank; and a 15th century Venetian sarcophagus of carved limestone, said to have come from the church of S. Giobbe at Venice, perhaps from the cloisters, which are now practically destroyed (A10-1909).

Three marble fireplaces (A1 to A3-1909) were presented by Mr. J. A. Dolmage in the name of his son, the late Mr. Cecil Dolmage; these are the work of Italian artists established in Dublin at the close of the 18th century.

Mr. A. Charbonnier presented an oak beam (A14-1909), English work of the first half of the 16th century; and Mr. A. Burman presented three 19th century Chinese carved wood figures (A11 to A13-1909).

There were no bequests in 1909. During that year, owing to the pressure of work involved in the general rearrangement, the only purchase made was that of four 14th century Moorish columns (A4 to A7-1909), said to have come from the Alhambra at Grenada. These columns had previously been exhibited on loan for some years. Two of the capitals bear the inscription: "There is no Conqueror but God." (£300.)

During the year 1910 there were many important acquisitions.

A series of doorways and other architectural details, mainly in wood (numbered A25 to A31-1910) were presented by H.M. Office of Works; these date from the 18th century—mainly from the last quarter—and were obtained from houses demolished in the early part of the year in Great George Street and Delahay Street. The gift was particularly acceptable, as doorways of this class are perhaps more continually measured and studied by architectural students than any other exhibits in the department.

Mr. J. H. Fitzhenry continued his generosity to the Museum by presenting an interesting relief of the Virgin and Child (A33-1910) in painted stucco, the work of a Florentine artist of the first half of the 15th century. Other work by cognate sculptors, sometimes gathered together under the name of the "Master of the Pellegrini Chapel," is already exhibited in the Museum; but this relief (of which there is a replica in the Kaiser-Friedrich Museum at Berlin) is an example of a particular group hitherto unrepresented. Mr. Fitzhenry further presented a collection of architectural details (A5 to A22-1910), mainly classical Roman work in stone and terra-cotta, but including Romanesque capitals, &c.—these were acquired at the Ferroni and other recent sales; and an extremely handsome figure of a recumbent knight in armour (A24-1910), typical of Venetian monumental sculpture of the late 14th century, which is said to have been obtained from a church in the Giudecca.

Mr. Max Rosenheim presented, through the National Art Collections Fund, an alabaster relief of the Assumption of the Virgin, English work of the "Nottingham School" dating from the 15th century. This panel, which has the colour unusually well preserved, forms a valuable addition to the collection of similar work already shown in the Museum; it was included in the exhibition of English alabaster work held in May and June by the Society of Antiquaries at Burlington House.

A further gift was that of three Japanese architectural models (A44 to A46-1910)—the Belfry of the Todaiji at Nara, the Taho-to (great pagoda) at Daidenbo-in, and the Hi-un-kaku (pavilion) at the Nishi Hongwanji, Kyoto, presented by Mr. H. Yamawaki on behalf of the Imperial Commissioners of the Japan-British Exhibition.

The magnificent bequest made by the late Mr. George Salting in 1910 has enriched this department in several directions; by far the most important of these, both absolutely and in relation to the collections previously possessed by the Museum, being that of Italian bronzes. The bronzes in the Salting Bequest (altogether about 120) do not, indeed, put the Victoria and Albert Museum on a level numerically with some of the great collections on the Continent; but many of the new acquisitions are of the finest possible quality, and almost all are of unimpeachable authenticity. A considerable proportion had been already exhibited on loan, and are thus familiar to visitors to the Museum. The bequest also included some Greek and Roman antiquities, ivories, and wood carvings.

Beyond question, says the report, the most important of the acquisitions by purchase during the year has been that of two life-sized recumbent effigies of white marble (A48, A49-1910) by a Spanish sculptor of the second half of the 15th century. These figures, which represent Don Rodrigo de Cardenas, a knight of the order of Santiago, who lived in the reign of King Henry IV. of Castile (1454-1472), and his wife, were formerly in the church of St. Pedro at Ocaña, a little town 10 miles to the east of Aranjuez; they are described as still *in situ*, with other tombs, in the third volume of "Castilla la Nueva," published in 1886. Don Rodrigo and his wife were the parents of Don Gutierre de Cardenas, whose arms adorn the great *artesonado* ceiling from Torrijos (407-1907), recently erected at the end of the West Hall. The knight is represented in full armour, wearing the mantle and badge of the order of Santiago and holding his sword; Donna Teresa appears to be in widow's dress and holds a rosary. At their feet are two beautiful female figures on a much smaller scale, resting on a helmet and on a pile of books; some parts of these, and of the larger effigies, have been carefully restored in marble. No doubt in their original position each effigy lay on a sarcophagus enriched after the usual Spanish fashion with heraldry and small carved figures. The date of execution must be placed, to judge from the costume and general style of the sculpture, in the last quarter of the century; the only definite piece of external evidence is that Don Alonso de Cardenas, who erected the monument to his uncle Don Rodrigo, died in 1499. The resemblance of the main figures, however, and still more of the little mourners at their feet, to those on the celebrated tombs of Don Alvaro de Luna and his wife in the chapel of Santiago in Toledo Cathedral, makes it plausible to suggest that the Cardenas effigies may also be the work of Pablo Ortiz, perhaps the greatest of Spanish sculptors of the later mediæval period, who was occupied on the Luna tombs in 1488 and the following years. (£1,000.)

Only second in interest to these magnificent sepulchral figures is the marble bust (A35-1910) of King Charles I., signed by Hubert le Sueur (1595-1650) and dated 1631, two years earlier than the same artist's famous equestrian statue of the King at Charing Cross. The bust is reported to have come from Holland, whither it might perhaps have been taken by Princess Mary of Orange: it appears to be the foundation of a type of which several versions exist, in bronze or marble, at Windsor, the National Portrait Gallery, the Albertinum at Dresden, and elsewhere. Le Sueur, who, although French by birth, lived in England from 1628 onwards, may be said to occupy an analogous position in the history of English art to that of his contemporary Vandyke; and this bust, with its evident fidelity to life in the features and delicately chiselled ornamentation on the armour, is a very notable addition to the collection of 17th century sculpture in the Museum. (£540.)

A third important purchase on a smaller scale has been that of an ivory relief of Christ in Majesty (A4-1910), Byzantine work of about the 12th century. In spite of serious mutilation this little panel, which is believed to have been found in Syria, still retains much of its original beauty and dignity. The ivory has been stained a curious green colour; and at some recent date the missing portions of the background have been carefully restored in tinted plaster. (£180.)

In addition to these, the department has made other interesting acquisitions by purchase.

Mr. George Armstrong, architect, Carlisle, has prepared plans on the instruction of the local Board of Guardians for proposed pavilions for consumptives and a Nurses' Home at Fursehill. The cost of the Home, with special accommodation for children, is estimated at £1,452.

THE LAKE VILLAGES IN THE NEIGHBOURHOOD OF GLASTONBURY.

Report to the British Association of the Committee, consisting of Dr. R. Munro (Chairman), Professor W. Boyd Dawkins (Secretary), Professor W. Ridgeway, Sir Arthur J. Evans, Dr. C. H. Read, Mr. H. Balfour, and Mr. A. Bulleid, appointed to investigate the Lake Villages in the neighbourhood of Glastonbury in connection with a Committee of the Somerset Archæological and Natural History Society. (Drawn up by Messrs. Arthur Bulleid and H. St. George Gray, the Directors of the Excavations.)

The second season's exploration of the Meare Lake Village by the Somerset Archæological and Natural History Society began on June 5 last, and was continued for three weeks under the joint supervision of Messrs. A. Bulleid and H. St. George Gray. The ground excavated was situated in the same part of the village and was directly continuous with last year's work.

The digging included the examination of the remaining portion of Dwelling-mound VII., the whole of Mound VIII., and portions of Mounds IX., X., and XI.

With reference to the construction of the above mounds, two, *i.e.* Mounds VIII. and IX., had special points of interest and call for mention here. Taken as a whole, however, this part of the work has been up to the present time somewhat disappointing, as little additional information has been gained regarding the structure generally, apart from that already acquired at the Glastonbury Lake Village.

Mound VIII. was of medium size, consisting of five floors and situated N.E. of Mound VII. No hearth was discovered associated with the two uppermost floors, which were separated with much difficulty throughout. An interesting series of eight superimposed baked clay hearths was, however, found belonging to Floors iii., iv., and v., surrounded by thick layers of fire-ash. The hearths varied from 2 feet 6 inches to 5 feet 3 inches in diameter.

Mound IX. was of large size, consisting apparently of two floors, and was only partially examined. Below the clay was a thick layer of black earth composed of charcoal, fire-ash, and débris containing quantities of bones of animals and fragments of pottery. Under the black earth a well-preserved platform of timber was disclosed, bordered by the remains of the wattled wall of a circular dwelling. This timber was chiefly arranged in a N.E. and S.W. direction, and by far the larger number of the wall-posts were made of squared oak, a feature not hitherto noticed in the dwellings previously examined.

The relics discovered this season were hardly as numerous as last year. A summary of them is appended.

Bone.—The bone objects were not very numerous. The most interesting specimen is a smooth pin without head, having a long recess, or notch, along the middle of the shaft. A similar object was found with Late-Celtic remains on Ham Hill, S. Somerset (Taunton Museum), and another on the Roman site at Iwerne, Dorset (Pitt-Rivers Museum, Farnham, Dorset). The other specimens include two tibiae of horse (sawn and perforated), two large polishing-bones, pins, a dress-fastener, part of a drill-bow, and two objects of worked bird-bone.

Worked Carpal and Tarsal Bones of Sheep or Goat.—A large number of "bobbins" and other objects, showing signs of considerable use, have been found, especially in Mound VII., where so many weaving appliances were discovered. Many of these bones are perforated in different directions; others have transverse markings, some deeply grooved and very smooth.

Worked Shoulder-Blades of Ox and Horse.—At the end of last season no less than thirty-two of these objects had been found, all in Mound VII. Four more were collected from the same dwelling this year; and two others in adjacent mounds. Two of those found in Mound VII. are ornamented with large examples of the dot-and-circle pattern. In all instances the bones are smooth, and the longitudinal spine had been cut down considerably. Many of them are perforated at the articular end (probably for suspension). They have been found where weaving implements are abundant, but their use remains to be explained.

Crucibles.—Fragments of two found this year.

Bronze.—Fifteen objects of this material were uncovered this year, but no fibulæ are included. There are three finger-rings, one ornamented by a cable pattern, two rivets (one of a new type), an awl, three thin moulded bosses, part of a belt-fastener, and a large part of the bordering of a perishable scabbard, including the bulbous chape. Perhaps the most interesting remains of bronze is a pair of pins with disc-shaped heads and arched stems.

Flint.—In addition to a number of flakes, a scraper and two or three finely-worked knives have been found.

Glass and other Beads.—The beads are numerous and varied. Nine were found last season; eighteen specimens this year. The collection includes two polished bone ring-beads. Six of the beads are of a yellow opaque glass, and two pale blue (also opaque). One of the finest specimens is a ring-bead of clear sea-green glass, and two are dark blue. A small blue bead is ornamented round the sides by a continuous wave pattern; two globular beads of clear white glass are ornamented in yellow, one by a spiral device, the other by a herring-bone pattern. The smallest bead is little more than $\frac{1}{8}$ inch in diameter.

Antler.—The numbered objects of this material have now reached the total of seventy-three, twenty-four being found this season, including three antlers of roe-deer, one bearing knife-cuts, another being shaped as a knife-handle. Nothing of exceptional interest has been found this season, many being pieces of cut antler impossible to name. The two hammers found have not been perforated for fitting handles. Several examples of the so-called "cheek-pieces," perhaps used in connection with the bridles and bits of horses, have been found, but the precise use of many of these objects is very doubtful, and their shaping and perforating varies very considerably.

Weaving-combs of Antler.—Again we have a fine series, bringing the former number of twenty-one up to a total of thirty-five. Mound VII., which must have been a weaving establishment, contributes no less than twenty-nine of the number. No dwelling in Glastonbury Lake Village produced more than nine of these combs. One example is dentated at both ends, with twelve and thirteen teeth respectively. The largest, having ten teeth, is $7\frac{3}{4}$ inches long. Several of them are ornamented with transverse and oblique lines, and one, at least, with dots-and-circles.

Iron.—The objects of iron are mostly fragmentary and much corroded as usual. The "finds" include a chisel, knife, file, and an awl in its handle of antler; also an earth-anvil. The latter was found on the top floor of a mound, and only a foot deep below the flood-soil, through which, owing to its weight, it may probably have sunk subsequently to the occupation of the village.

Kimmeridge Shale.—Objects of this material have this season been increased from twelve to twenty-one, and they are more numerous than in the neighbouring village of Glastonbury. These objects are parts of lathe-turned armlets, with three exceptions, viz. a set of three roughly-cut heavy rings, which may have been used in connection with horse-harness. In section one of the armlets (half) measures no less than 21 mm. by 16 mm.

Lead and Tin.—Last season three net-sinkers of lead were found, to which one has been added this year. The first object of tin has been found, viz. a small whorl (? bead) ornamented with encircling lines of small punch-marks.

Querns.—Compared with the Glastonbury Lake Village these are plentiful at Meare, but the circular rotary querns are rare as compared with the saddle-shaped specimens, of which some well-preserved examples have been found.

Other Stone Objects.—Parts of circular blocks of stone have been found, slightly recessed on one face and having a narrow rim; they show signs of intense heat and may be parts of moulds for casting thin bronze. A large assortment of stone hammers and whetstones have been found.

Sling-Bullets.—Several of the baked clay sling-bullets typical of the period have been collected. Under the clay floors of the mounds three groups of selected ovoid stones were discovered, the numbers being 99, 182, and 347, respectively.

Spindle-whorls.—The former number of twenty-three has this season been increased to forty-three. Most of them are formed from discs of lias; a few are of baked clay, two being very large.

Pottery.—Shards of pottery have been very numerous—some three or four hundred-weights. All of them have been scrubbed and preserved, being sorted under the numbers of the dwellings. Several complete pots may probably be built up some day. The proportion of ornamented fragments is high as compared with those from the neighbouring village, and a great many new and highly ornate designs have been added to the collection. Very little ornamented pottery was discovered in the deepest layers; and much of it bearing typical Late-Celtic designs was found just under the flood-soil. The coarser plain pots were generally found in the black earth and brushwood below the clay floors.

Human Remains.—Two pieces of skull and one bicuspid tooth.

Animal Remains.—Found abundantly. The perforated boars' tusks and canine teeth of large dog were no doubt used as personal ornament. The enormous number of bones of young animals indicates that the inhabitants of this marsh village must have been great meat-eaters. The remains of beaver and otter are frequently met with; and also a considerable number of bird-bones.

GAS AND THE SMOKE NUISANCE.*

THE chief offender against the clear sky is the domestic hearth, although the small factory and the chemical and other industries employing furnace heat are factors. The great iron trade may be left out of consideration, as requiring a critic more hopeful than myself.

It has been said that in the generation of steam double the coal is used that is needed, but in the private house six times. Many contrivances have been invented to enable ordinary bituminous coal to be consumed smokelessly, but the complication and consequent trouble and expense will always prevent such inventions coming into general use. The employment of some form of smokeless fuel appears to be the only remedy likely to be useful, and this fuel may be either solid or gaseous. The liquid fuels may be left out of account for domestic use.

The difficulty arises from the composition of coal and the nature of its combustion under ordinary circumstances. When coal is heated in mass and the temperature rises gradually there passes off a mixture of hydrogen and the heavier hydrocarbons carrying also quantities of finely divided carbon, possibly itself derived from some very loosely bound compound of carbon and hydrogen. As this mixture is given off at temperatures far below ignition point, it passes unburned to the flue, and appears as dense smoke. As the temperature increases the proportion of loose carbon falls, the hydrocarbons are of a somewhat lighter type, carbon monoxide also passes off, and the smoke fades through various shades of brown to grey, and finally disappears. It is not carbon alone which reaches the atmosphere and taints it, but carbon monoxide, ammonia, sulphuretted hydrogen, and various unburnt hydrocarbons. The loss of heat is enormous. When one pound of carbon is fully burnt to carbonic acid there is developed about 14,500 B. th. units of heat, but if carbon monoxide alone is formed the heat produced is only about 4,400 units. Thus 70 per cent. of the available heat of the carbon in this reaction is sacrificed, while a highly poisonous gas is delivered into the air. It cannot be too strongly emphasised that carbon-dioxide, or carbonic acid, is harmless if not present in such quantity as to prevent the due access of oxygen to the lungs. It may, without the slightest injury to health, be present in ten or twenty times the normal amount; but carbon-monoxide is a deadly poison, which the blood will greedily absorb even if present in only small quantity in the air inspired.

There are two classes of solid smokeless fuel available for ordinary use, anthracite coal and coke. The former has lost by natural means the greater part of its volatile constituents, and may be regarded as essentially carbon and ash. It is very difficult to ignite, and impossible to burn in the ordinary grate. There are many circumstances in which anthracite stoves are useful, but I think a living-room is not one of them. Direct radiation from a glowing bed of fuel plays but a small part in their heating effect, depending as it does so largely upon convection of the heated air and dark radiations from the metal of the stove. It seems certain that direct radiation from an incandescent mass is the most sanitary and comfort-giving method of heating. It is not meant that only the shorter-waved radiation is useful; rather should it be understood that a proper combination of radiation and convection is to be preferred, the heat varying in proportion from the two sources as circumstances are best suited. For comfort in an ordinary living-room the greater part of the heating effect is best got from radiation, and there is good reason to believe that from a sanitary point of view the same has to be said. The radiant heat from glowing fuel passes freely through the air of the room without materially raising its temperature. It falls upon the walls and furniture, warms their surfaces, and thence the air is warmed. When convection alone is depended upon, the walls of a room remain at a low temperature in comparison with that of the air, and there is a chilling exchange between the body and surrounding objects. It may be noticed that the temperature of a room heated by convection requires to be kept much higher than where radiation is the chief source; and certainly in this country nothing but a fireplace deriving most of its effect from radiation has any chance of general adoption.

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* Abstract of a Paper presented to the Congress of the Royal Sanitary Institute at Belfast by Councillor H. Riddell (Belfast).

Ordinary gas-coke presents a like difficulty with anthracite, but in less degree. It is difficult to ignite, but when the draught is good and the bed of fuel fairly thick, it burns well in an ordinary grate if once ignited. There are some special cokes, produced by stopping the carbonisation before all the volatile matters have been driven off, and these will ignite almost as easily as coal, and burn as freely and as brightly. In Belfast, however, no more coke is produced than is sufficient to meet the demand from trade uses, and none is available for the private dwelling. It may be that certain developments in progress will allow of our Gas Department experimenting in the production of a coke cooled without water and in the absence of air, by which means a very freely burning fuel is obtained. At present, however, the especially useful and available smokeless fuel is the town gas. It is, of course, impossible for the private dwelling to manufacture a gaeous fuel, so that a supply if required must be drawn from the town mains.

There has of late years been a great advance in the use of gaseous fuels both for heating purposes and the generation of power. So great has been the effect upon the production of ordinary gas, that at present a very large proportion of any supply is absorbed for such purposes. Only in a very few places have separate mains been laid for the distribution of gas for heating and power as distinct from the lighting supply, and it seems probable that in the future, considering that illumination now depends almost solely upon flame temperature, a service of high-pressure mains may well supply both purposes.

A very great advance has been made in the construction of gas-stoves of all kinds, and they are steadily becoming extremely popular. In Belfast the Gas Department have sold or supplied on hire no fewer than about 20,000 stoves, and their number is steadily increasing. There are three classes of heating stove in use, those depending solely upon convection for their efficiency, those which combine radiation with special arrangements for convection, and those which depend mainly upon radiation from a glowing mass for their heating power. In the first class must be placed all the flueless stoves, which deliver the products of combustion, with or without condensation of the water vapour, into the air of the room. These are altogether unsuited to a living room, or to any place which is not very freely ventilated. They are used with advantage in halls and corridors, or in shops where ventilation is large, and they attain a high economy, as practically all the available heat of combustion is made of use. In the second class must be placed those stoves which have special gills or heating chambers provided, warming air and distributing it into the room as well as providing radiation from an incandescent mass. In many cases these stoves are most useful. Pure air can be drawn from outside the house and delivered in continuous supply into the room, so that a constantly pure breathing atmosphere can be obtained.

For bedrooms, where a mild temperature is called for in winter, such stoves are very valuable and economical. Even if the convection effect predominates to such an extent that the walls of the room are slightly colder than the air, it matters little. The coverings can be easily suited to prevent any heat exchanges from the body, and the temperature can be accurately maintained for hours at the same degree. For very large rooms such stoves seem also to be suited, but for ordinary living rooms those which depend upon direct radiation are greatly to be preferred. There has been much improvement in the past few years in the efficiency of stoves of the latter class, and experiments conducted with great care in the laboratories of Leeds University have made it certain that stoves are at present being produced which pass 50 per cent. of the heat of combustion by direct radiation into the air, while only a comparatively small proportion passes away among the escaping flue-gases. In an ordinary coal fire fully 75 per cent. of the heat of combustion is carried off in the flue-gases, while for cleanliness and convenience the gas-fire is unquestionably much superior.

There is no doubt that the gas consumption in many fires has been too large, but modern stoves are showing distinct advance in this respect, while care in setting will allow a greater effective result from the same consumption of gas. For example, there has been too great readiness to close up all openings into the chimney, except through the flue of the stove. This is in general a mistake, as there is caused thereby an intensity of draught much greater than is necessary to carry away the products of combustion, thus drawing an undue proportion of cold air across the radiating bed, and cooling it unnecessarily. The burner must be properly adjusted to both quality of gas and pressure. It therefore follows that it is a prime necessity in modern gas supply, where even the lighting effect depends upon flame-temperature, that the gas should be delivered to the consumer constant both in composition and pressure. It is impossible to properly adjust a burner which deals with gas requiring varying proportions of air for proper combustion. Means of adjusting the supply to requirements are too often omitted. It is not economical to adjust simply by turning down the gas. Much better to cut out one or two burners altogether, and leave the remainder acting under proper conditions.

As regards the use of gas for cooking, there is no doubt that this is always economical in ordinary circumstances, and as the use of a cooking-stove is only occasional, and it is generally placed in a well ventilated position, the provision of a flue is seldom necessary. Where, however, the stove is to be in constant and large use a flue is essential. Many stoves are provided with an economiser arrangement, utilising waste heat for warming water, but for heating on any large scale one of the special heaters of the Geyser class, with a proper flue provided, is both efficient and suitable.

One of the most convenient uses of gas in the household is in the domestic iron. Nothing is more wasteful in a coal fire than the metal heater for a box iron, while the small consumption of gas and speed and ease of preparation of a good gas iron are clear and great advantages. Nearly all the many thousands of irons in use in the large laundries in Belfast are heated by gas.

While the domestic fire is the chief in our list of sinners, the small factory still contributes a portion of the smoke nuisance, a portion gradually decreasing. Where the power employed is small, or where it is intermittent, as in the passenger lifts in our large buildings, electricity supplied from a central station very perfectly meets the difficulty. There are also many cases where considerations other than mere economy are in operation, which are well suited by a central electric supply, but in our large factories the economy of the production of power, and possibility of perfect combustion, are usually much better than in an ordinary electricity supply station. For moderate powers the suction gas producer, with a good gas engine, has come into considerable favour, yet the combination has some disadvantages of its own. At the present high price of anthracite there is a great reduction in its economy.

It is true that some plants are at work upon bituminous coal, or upon ordinary gas-coke, but the sum of experience on such has not yet been quite satisfactory. Until the producer can be completely depended upon with the fuels mentioned, there will not be the same prospect of rapid increase in use.

ILLUSTRATIONS.

MINARET, ABOUKIR.

THIS minaret was designed by Mr. Robert Williams, F.R.I.B.A., for Mr. G. B. Alderson. Only the lower stage and adjoining praying-hall and lavatories were, however, embodied in Mr. Alderson's presentation scheme to the village of Aboukir.

PREMIATED DESIGN FOR HARTLEY UNIVERSITY COLLEGE, SOUTHAMPTON.

IN this design by Messrs. Hickton & Farmer, although the completed scheme will form one continuous building, each department has been kept quite distinct, with separate entrances and stairways, and due regard has been given to the buildings being erected in sections at different times. The buildings are arranged as shown on the plans to form two quadrangles, one for the male students and one for the female students, for whom entrances are provided from the quadrangles to their respective cloak and common rooms. It was proposed to carry out the façades with thin dark red bricks in white mortar and Portland stone. The main entrance hall and stairs to be in marble. The roofs to be covered with grey-green slates in diminishing courses. The heating throughout to be by high pressure steam carried by mains in subways to the various blocks, where the heat would be converted by calorifiers to low-pressure hot water, each block and each room being heated independently and under the control of the occupants. The cost of the administrative and art block, which was to be first erected, was estimated at £35,068, and that of the complete scheme at £99,573. Messrs. Hickton & Farmer's design was awarded the third premium in the open competition for these buildings.

THE INFLUENCE OF CARBON AND OTHER ELEMENTS ON THE CORROSION OF STEEL.

Abstract of Report to the British Association of the Committee, consisting of Professor J. O. Arnold (Chairman), Dr. W. E. S. Turner (Secretary), Professor W. P. Wynne, Professor A. McWilliam, Mr. C. Chappell, and Mr. F. Hodson.

THE subject of the corrosion of iron and steel is one that is rapidly engaging considerable attention in the metallurgical world, the researches of Friend, Cushman, Walker, Longmuir, and others having brought it deservedly into considerable prominence. Despite the fact, however, that the modern metallurgy of iron and steel largely centres about the influence of various alloying elements upon its physical and mechanical properties, no reliable data are available as to the influence exerted by them upon its corrodibility. In view of the absence of such data regarding the influence of carbon, in gradually ascending percentages, upon the corrodibility of iron, and especially in view of the fundamental importance of carbon as an iron-alloying element, the Committee have confined their attentions solely, during the past year, to the investigation of the influence exerted by this element upon the corrodibility of iron.

An attempt was made by Andrews to obtain some data regarding this question, and his results were published in 1885 in a paper on "The Corrosion of Metals during long Exposure in Seawater"—one of a series of brilliant and systematic researches on corrosion which are unfortunately not so well known as they deserve to be. His ascending carbon series, however, included such widely diverse materials as wrought iron, Siemens and Bessemer steels, and also crucible cast steels, in which the percentages of Si and Mn vary considerably, rising as high as 0.4 per cent. and 1.3 per cent. respectively, while the S and P in some cases respectively reach such abnormal figures as 0.12 per cent. and 0.27 per cent. each. The values given by such a series can hardly be relied upon as being indicative of the influence of carbon alone upon the corrodibility of iron.

A series of pure iron-carbon alloys have, therefore, been obtained by the Committee in order not only to indicate the influence of carbon upon the corrodibility and other properties of iron, but to serve also as a base line from which the influence of other elements upon the corrodibility of steel may be determined in future researches. These pure iron-carbon alloys were prepared by the coke crucible process in the Metallurgical Department of Sheffield University, the materials employed being Swedish bar iron and charcoal, this method having been found to give the purest iron-carbon alloys obtainable. Six such alloys have been employed, ranging from 0.10 per cent. to 0.96 per cent. carbon, and the microscopic examination in the rolled condition showed the distribution of the micro-constituents in these steels to be remarkably even throughout the whole of the series. It is also important to note that, despite careful search, no traces were found of manganese sulphide, the powerfully electropositive nature of which tends to cause serious electrolytic action when present in steel, thus materially increasing the corrodibility.

The determinations of the corrodibility and other properties of these steels have been carried out in several states of heat treatment, which have been designed to resolve the pearlite into the principal varieties in which it usually exists in carbon steel—viz.: (*a*) Diffused (*b*) Laminated, and (*c*) Emulsified, and also into Hardenite, which is the essential constituent of hardened carbon steels. The treatments employed were (1) As Rolled, (2) Normalised, (3) Annealed, (4) and (5) Hardened and Tempered at (α) 400° C. and (β) 500° C., (6) Hardened.

The relative corrodibilities of these steels in all states of treatment have been measured by immersing polished cylindrical bars of the various specimens ($4\frac{1}{2}$ in. long × $\frac{3}{8}$ in. dia.), each separately in 700 c.c. seawater for a period of thirteen weeks, the loss in weight per cent. during this period being determined.

The results obtained indicate that the carbon exerts two types of influence upon the corrodibility, dependent upon the condition of the carbide in the steel. In the rolled, normalised, and annealed specimens, in which the carbide (as shown by microscopic examination) exists entirely either as the diffused, normal variety, or as the laminated variety of pearlite, the corrodibility rises to a maximum at saturation point (0.89 per cent. carbon), and then decreases upon the appearance of cementine in the steel. The rise in corrodibility in such steels with increase of carbon from 0.10 per cent. to 0.89 per cent. is not regular, but is much more rapid in the range 0.3 per cent. to 0.89 per cent. carbon than in the low carbon range 0.10 per cent. to 0.3 per cent. carbon.

In the hardened and tempered specimens, however, in which the carbide has been converted respectively either to hardenite or the emulsified variety of pearlite, it has been found that the corrodibility rises continuously from 0.10 per cent. to 0.96 per cent. carbon, no maximum being observed at the saturation point. The proportional increase of corrodibility in these steels with rise of carbon per cent. is very rapid up to about 0.25 per cent. carbon in the case of the hardened steels, and about 0.40 per cent. carbon in the tempered specimens. After these points the rate of increase of corrodibility with rise of carbon per cent. is small but regular up to 0.96 per cent. carbon, being in this respect the reverse of that found in the type first described.

The state of division of the carbide in the pearlite is found to exert very considerable influence on the rate of corrosion of iron-carbon alloys. In general, the annealed steels, in which the carbide exists entirely in the laminated condition, show a minimum corrodibility, while the tempered steels containing the carbide as the emulsified variety show a maximum corrodibility—except in the very low carbon steels. The normalised steels, moreover, in which the carbide is in an intermediate state of division, being mainly of the diffused variety, take up an intermediate position. This indicates that the finer the state of division of the carbide in the pearlite the greater is the liability to corrosion when immersed in seawater—a conclusion which is in complete accordance with the electrolytic theory advanced by Cushman and Walker. This is also supported by the fact that in the case of tempered steels a rise in the tempering temperature from 400° C. to 500° C. produces a marked decrease in the corrodibility, this no doubt being due to the slight decrease in the fineness of division of the pearlite which is produced by the rise in tempering temperature. The conversion of the pearlite into hardenite is accompanied by a very considerable rise in corrodibility, the hardened steels corroding more rapidly than any of the unhardened or tempered steels.

Careful examination of the deposits on the corroded bars on removing them from the seawater shows the rust deposit to be made up of two different types. These may be briefly described as

(*a*) Light brown deposit, flocculent and easily removed, forming an even coating over the whole of the exterior of the rust deposit.

(*b*) A deposit of a bluish black colour, somewhat greenish in some cases, underlying the previous mentioned deposit. This is mainly found at the lower end of the bars, to which it is usually somewhat firmly adherent. In the case of the hardened and tempered specimens a thin easily removed layer of a similar colour is found covering the whole of the bar underneath deposit (*a*), in addition to the firmly adherent deposit at the lower end. Whether this deposit is merely a form of deposit (*b*), or whether it is really a chemically different type of deposit of the same colour, is not known. A detailed examination of these respective deposits might probably throw considerable light on the phenomena involved in the corrosion of steel.

Determinations of the solution pressures of the steels after prolonged immersion in seawater have also been made with a view to ascertaining the influence of carbon on the electrochemical positions of the various steels under conditions of galvanic corrosion. The results up to the present, however, are not sufficiently conclusive to warrant any definite statements in this direction being made in this report. The influence of the condition of the carbide upon the relative electro-chemical positions of the steel is, however, more definitely shown. In the case of a saturated steel it is found that after three weeks' immersion in seawater the emulsified variety of pearlite is electropositive to the diffused and laminated varieties, while the conversion of the pearlite into hardenite renders it electronegative in this form to all the varieties of pearlite.

The solubilities of the various steels employed have been determined in 1 per cent. solutions of H_2SO_4 and HCl, in order to determine the influence of carbon on the solubility of iron-carbon alloys, and also to obtain an indication of the loss in weight per cent. sustained on immersion in acid solutions, as contrasted with corrosion in such solutions as seawater.

This was considered of importance in view of corrosion taking place under ordinary conditions, especially in large towns, where atmospheric acids contained in the rainwater play an important part. This section is also of interest in the case of corrosion taking place in such solutions as acid pit waters.

The solubility tests were carried out on polished cylindrical bars of the steels ($1\frac{1}{2}$ inch long by $\frac{3}{8}$ inch dia.), which were separately immersed for a period of forty-eight hours in

100 c.c. of the acid employed. The results obtained on immersion in 1 per cent. H_2SO_4 are remarkably similar to those obtained in 1 per cent. HCl, both as regards the actual values obtained with given specimens and in the type of influence exerted upon the solubility by the carbon per cent. and of treatment.

The influence of carbon on the solubility is found to vary considerably according to the treatment previously undergone by the steel.

In the normalised, rolled, and annealed specimens the solubility rises very rapidly from 0.10 per cent. up to 0.22 per cent., carbon approx., after which it falls abruptly, reaching a minimum at about 0.30 per cent. to 0.40 per cent. carbon. Further rise of carbon from 0.40 per cent. to 0.96 per cent. carbon produces a general, but somewhat irregular, rise in solubility in the normalised and rolled specimens, whilst in the annealed specimens a maximum solubility is reached at 0.60 per cent. carbon, after which the values gradually decrease again to 0.96 per cent. carbon.

The tempered steels show a rapid rise in solubility with rise of carbon from 0.10 per cent. to 0.30 per cent. This rise is followed by a range from 0.30 per cent. to 0.55 per cent. carbon, in which the solubility remains constant in the case of the specimens tempered at 500° C., and decreases in that of the specimens tempered at 400° C. After 0.55 per cent. carbon a very rapid and regular rise in solubility occurs with rise of carbon to 0.96 per cent., the values given in the latter half of this range being higher than those given by steels of any other composition or treatment.

In the case of the hardened steels, the carbon tends to exert a similar type of influence to that described in the steels tempered at 400° C., this fact being more evident in the 1 per cent. HCl results than in the 1 per cent. H_2SO_4 results. The variations with carbon percentage, however, are very much less pronounced, and the total rise in solubility from 0.10 per cent. to 0.96 per cent. carbon is very small. In connection with the influence exerted by the condition of the carbide it is found that the conversion of the pearlite to hardenite considerably decreases its solubility (in both acids) as compared with all the varieties of pearlite. Little decisive difference is observed between the steels containing the laminated and diffused varieties of pearlite, whilst the resolution of the normal pearlite into the emulsified variety results in a decreased solubility below 0.2 per cent. to 0.3 per cent. carbon and a greatly increased solubility in the upper part of the range above 0.7 per cent. carbon.

The solution pressures in 1 per cent. H_2SO_4 after twenty-four hours' immersion have also been determined, and these results again indicate the influence exerted by the carbon to be of two main types.

In the annealed, rolled, and normalised steels—taking E.M.F. in volts and carbon percentage as co-ordinates—two distinct maxima are observed at 0.22 per cent. carbon and saturation point respectively, whilst the values for E.M.F. reach a minimum at 0.45 per cent. carbon. The values given at the 0.22 per cent. carbon maximum are much higher than those at the saturation point.

In the case of the hardened and tempered steels, the values of E.M.F. fall directly from 0.10 per cent. carbon to a minimum at approximately 0.4 per cent. to 0.5 per cent. carbon, after which a rapid rise to a maximum at saturation point takes place, followed by a sharp fall to 0.96 per cent. carbon.

The relations between the values given by the various types of treatment are analogous to those noted in the case of the solubilities. The hardened steels are consistently electronegative to the other steels. The tempered steels are electronegative to the annealed, normalised, and rolled steels below 0.50 per cent. carbon, whilst the relative electrochemical positions are reversed in the range from 0.7 per cent. up to 0.95 per cent. carbon. Very little difference is produced in this direction by difference in the tempering temperature, as is shown by the close agreement of the results given by the two tempered series. The divergence between the annealed, normalised, and rolled steels becomes quite distinct above 0.3 per cent. carbon when the annealed steels become the most electropositive, whilst the normalised steels take up the most electronegative position in this group of steels when immersed in 1 per cent. H_2SO_4. Below 0.30 per cent. C. the relative electro-chemical positions become confused and inconclusive. There appears little doubt that the results obtained in this section of the research indicate substantially the relative electro-chemical positions which would be taken up by the various steels on immersion under galvanic conditions in 1 per cent. H_2SO_4 solution or in acid mineral waters of a similar type.

It will be observed that the resistance offered by carbon steels to disintegration when immersed in solutions varies considerably according as to whether the solution is of the seawater type or is acid in character, and also as to whether the conditions of immersion are simple or galvanic in nature. It is impossible, therefore, to specify any particular composition or treatment offering the best resistance to attack under all conditions, and each case must be considered according to the circumstances involved.

THE ARCHITECTURE OF LONDON HIGHWAYS.

By "Viator."

THE SILENT HIGHWAY OF THE THAMES.

We recall a quotation that was very rife a few years ago: "They little know of England, who only England know." It answered its purpose at the time; but of a surety with most of us the knowledge is even less; for not only do we not know England—we do not know London. In a general way we have some idea that it is a congeries of townships and that it embraces some one hundred and twenty square miles of area; but there the general knowledge of it in its broader aspects ends. Is not this wrong? Surely English people should see to it that they are in a position to speak intelligently, if not intimately, of their own Metropolis, before devoting their annual holiday to overrunning the Continent.

Suffice it that there can be no more potent magician for conveying to us a sense of the mere magnitude of London than the itinerary along Father Thames for the two-and-twenty miles, spanned by the Metropolis. Perhaps "spanned" is not quite the proper word to use, as this great extent of mileage is the result of an exaggeratedly serpentine course—but let it pass.

Twenty-two miles! Conceive what would be the sensation of pride in our bosom (a sensation, by-the-bye, quite unjustified), were we to conduct a foreigner along this watery route down from Hammersmith to Plumstead. "Ciel! est-ce que nous sommes encore à Londres?" would greet our tickled ears before we had reached even Vauxhall; and again—and yet again would the welcome interrogatory resound! Ah, well! is it not all vanity?

Instead, however, of descending, let us for this occasion ascend the river. And there is good reason for this from the artist's point of view; for, truth to tell, "below bridge" there is very little to engage the attention in regard to bricks and mortar. Yes! there is a plenitude of these materials, it may be granted; but rugged utility was the moving factor in the erection of the buildings that line the banks of old Thames from Plumstead to London Bridge; and to our mind it seems more fitting to work up the river to a climax than to work down-stream to an anti-climax.

But there are exceptions to the display of mere rugged utility, though amongst these we are not inclined to include Woolwich Arsenal, which dates from the reign of George IV. Over this and the dockyard we will not linger; but, as being the first London edifice worthy of notice, we will direct attention to Greenwich Hospital, that noble collection of buildings, where we are confronted by the designs of Inigo Jones, John Webb, Wren, Hawksmoor and others. There can be no wish to compare or to contrast or to discriminate, where it is all so fine and monumental and so filled with the best architectural qualities; the ⊓ treatment is probably the most effective architecturally. Where so many have contributed to the designs, criticism—laudatory or otherwise—may well be dispensed with; and our attention will be directed, therefore, to the statue of King George II. in the centre of the open space (we must not call it a quadrangle). That the monarch should be depicted in Roman garb is initially an error, but one for which Rysbrach, the sculptor, must not be held responsible; it was the current affectation. After saying this, we can frankly applaud the group, taking especial interest, however, in the carved north panel of the pedestal, displaying the Royal standard with its numerous quarterings showing the lions of England and Scotland, the harp of Ireland, the lilies of France, and the white horse of Hanover; the whole monument is sculptured out of a single block of marble. The interesting stone armillary spheres, eight feet in diameter, set atop the two gate-piers at the main entrance, cannot be seen from the river, nor can Inigo Jones's block, known as the Queen's House. Greenwich is, indeed, a building not to be seen merely from a passing boat; it needs detailed inspection. We must not linger over St. Alphege's Church at Greenwich, for this, too, is not properly seen along the river; nor, indeed, does the exterior of it demand prolonged inspection, saving the unusual and pleasing stone pedestals along the boundary, showing carved drums, such as we should like to see more frequently employed.

And after Greenwich, what is there to see? Wharves, endless wharves, "where the river Thames is pleasing and only the buildings vile," if we may thus far misquote Bishop Heber. In passing it may be noted that though nearly all the buildings are on a dead level of dulness, yet the owners of those along the right bank are much more prone than those along the left bank to record the dates of erection. The very few buildings that rise above the rest in the scale of architectural anæmia demand notice only by way of variety. But whilst still "below bridge" (we refer to London Bridge, of course) there are two other structures that demand our fixed attention; in fact, in the case of the Tower of London, it compels our attention; and it is the Hospital, the Tower and the Custom House that redeem the architectural vacuity of twelve miles of river.

But what a noble redemption! Either Greenwich or the Tower singly would accomplish this; together, and in company with the Custom House, all is well. The Tower of London has a charm that is possessed by no other building in the Metropolis, not even the church of St. Bartholomew-the-Great. In gazing upon this Norman pile, occupying an area of twelve acres, we become conscious of the impassable abyss between the Normans and us and our own times. Wren left his mark here, as he did in so many spots, for we are told that he altered the aspect of the Keep, part of the exterior being cased with flints, two of the towers being rebuilt and the openings altered into Italian windows. Tower Wharf is worthy of notice, being the work of Henry III.; it is nearly a quarter-mile in length and has a water-gate, known as the Traitors' Gate. Truly was it an instance of the luck of thirds, for the Royal builder failed twice before he succeeded; the wharf is built on land recovered from the river. The Tower is not beautiful in the ordinary acceptation of this term, but it possesses an undying charm and picturesqueness, enhanced (were enhancement needed or possible) by the neighbourhood of that apish neo-mediæval Art exhibited in the Tower Bridge. What possessed Sir Horace Jones so to degrade the Art, as to produce such an anachronism? Was it the result of collaborating with an engineer-son of Sir Charles Barry—the Barry whose Gothic failure at St. Stephen's we shall have to record anon? For Sir John Wolfe Barry's engineering there is nothing due but praise, and the easy-working bascules are a never-failing source of interest and admiration to gazers; but they should have been kept in countenance by the honest display of steel construction, undisguised though not of necessity indecorative.*

The Custom House is a quiet, reputable stone block with plain walling, showing a central colonnade and two flanking projections. The order of architecture employed is Ionic. The building is well proportioned, the raised central block (the work of Sir Robert Smirke) being supported by lower connecting blocks and wings. When all is said, however, the Custom House would not fix the attention, or even greatly attract it, were it not for the paucity of even noticeable buildings. As for Billingsgate Market, fewest words are best, except that in extenuation of Mr. J. B. Bunning's design it may be urged that official architects to public bodies are in a parlous position; officialdom in any profession—and more particularly in architecture and poetry—is apt to exercise an unhealthy influence; and so, in this case, we would prefer, Mr. Bunning being dead, to say nothing.

And London Bridge itself? Alas! for its vanished glories of picturesqueness and archæological value. When the City Corporation undertook a few years ago to widen the traffic-way, spending £100,000 in the process, they acted in the most modern spirit in effacing all picturesqueness.

Here and there we meet with an observant spectator who notices that the architectural interest of the Thames lies almost wholly on the left bank. In fact, it is comparatively but a small proportion of the whole extent of river frontage in the Metropolis—nearly forty miles, be it understood—that is architecturally bedecked. But we will linger for a brief spell opposite the building just "above bridge"—Fishmongers' Hall. It is a work of Wren's and a very pleasing one, showing a rusticated and arcaded ground storey, surmounted by a plain stone façade, decorated, however, with an Ionic Colossal Order of engaged columns. The superimposed shallow pediment, flanked on either side by balustrading, completes a very satisfactory river façade, whilst the entrance front in King William Street is also very good.

Of necessity, attention must be brief, during a river trip, respecting any object along the route; some, indeed, must be passed over without notice, bearing in mind the length of our serpentine course.

Hasten onwards, oh! boatman, and carry us west of Southwark and Blackfriars Bridges and the railway viaduct abortions; merely let it be noted, as we glide beneath Southwark Bridge, that it is destined for "improvement" shortly, and we wonder what changes the City Corporation will effect in its appearance—for the worse is an impossibility, we believe, and therefore we may live in hope.

And as we glide under Blackfriars Bridge, what do we find to be the most interesting features in connection with it? Not the bridge itself, though, indeed, this has been ignorantly described as "one of the handsomest (bridges) in London, its appearance marred, however, by the proximity of its neighbour, the Alexandra (L.C. and D.R.) bridge." Pity 'tis that Mr. Page (who designed the fine Westminster Bridge and who was selected in the first place for designing the one for Blackfriars) was thrown over for Mr. William Cubitt. After forty years it was destined to submit to the widening process, but nothing worthily monumental has resulted from the efforts of the City Corporation.

Glancing, however, below the bridge on the northern abutment at the period of low water, we perceive two elliptical openings, which are the outlet of the old river Fleet, now used merely as a sewer. And the second point of interest is that here commences the greatest continuous stretch of river frontage, displaying to our gaze objects of architectural interest. Many of the buildings that face the Embankment are not visible from the deck of a river boat; and where this invisibility is too pronounced such buildings will not be passed under review in this article; in other cases liberties may possibly be taken.

The Embankment itself, however, is an engineering work that undoubtedly demands notice. Sir Joseph Bazalgette, the engineer, has produced a piece of work which is a credit to the science of engineering, and which is by no means despicable as a work of art. True it is that the archways and the pedestals seem somewhat incongruous in the absence of statuary groups; but even here a healthy commencement has been made by the setting-up of that fine chariot group of Boudicca (known to us in our younger, though unregretted, days of youth as Boadicea, Queen of the Iceni) and her daughters on the pedestal next Westminster Bridge. The group is instinct with life and carries our thoughts back to very early days in the history of "this little isle of England, this dear, dear land." We are not concerned to dwell upon Cleopatra's Needle, an exotic that would be far better housed in the Victoria and Albert Museum; but a word of praise is due to the lamp standards along the parapet wall of the Embankment.

It is with deep regret that we feel compelled not to review York Gate, which at one time was washed by the Thames, but which is now concealed from a river-view, being sunk behind the Embankment in the Gardens.

And now to examine such of the buildings as may fitly be dealt with here. The City of London School is well worthy inspection, and Messrs. Davis & Emanuel, the architects, are to be congratulated upon the successful achievement of an architectural block. Here are congregated good massing and proportion, chiaroscuro, well-disposed ornament and dignity. The building is what Scriptural writers would describe as four-square; the angles are quietly emphasised on plan and suitably distinguished in elevation by pleasing lantern-finials. It is, in fine, a good Renaissance pile, with due regard paid to the superposition of Orders; and in its thirty years of existence its all-stone façades seem not to have deteriorated in the slightest.

Along the Embankment we find more modern Gothic buildings than it is customary to see nowadays along a thoroughfare, but of these only two will be noticed. Sion College, in foundation, dates back to the days of Charles I. It is of passing interest to notice these dates. In 1530 a priory for canons regular (which was situated against London Wall, near Cripplegate) was surrendered to King Henry VIII. A century later (A.D. 1631) this property was purchased for the use of the London clergy, who were incorporated by the name of the President and Fellows of Sion College. A century later again (A.D. 1731) appeared a little handbook on London, purporting to be written by a Portuguese merchant, Don Manoel Gonzales, and herein is an interesting description of the college as it existed at that time. But in process of years the site became unsuited for the purpose, and the present location adjoining the City of London School was obtained, Sir Arthur Blomfield being engaged to design the new building. We may suppose that this architect could not produce anything that was architecturally bad, but the college is not one possessed of outstanding merits; the best, and at the same time the most pronounced, feature is the massive porch; but it has the effect of dwarfing the rest of the building. And the pile seems to be all glass, which may look well enough from within doors in all its coloured glories; externally it is unsatisfactory. The other Gothic building to be noticed is one much further west, designed by John L. Pearson; the Astor Estate Office shows all-stone façades, in this respect differing from all the other and numerous Gothic buildings on the Embankment. Here is no one part dwarfing another; here we see orderly subordination, grouped masses, well-disposed windows and quiet ornament—a building quite free from the reproach of affectation. It is not tame, not insipid; it possesses the air of one who, though bred in the country, has received a University education; it is, so to say, Sir Roger de Coverley, not Colin Clout.

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* The interesting account of the Tower Bridge at the date of its opening may be consulted with advantage; vide *The Architect*, July 6, 1894.

We will pass by the offices of the Port of London Authority, which are contiguous to Sion College, and will arrest our gaze at the offices of the Metropolitan Asylums Board. These are passable, but not admirable; there seems to be no distinct architectural *motif*, such as is apparent in the City of London School; and if we say that the most attractive feature is the top-story loggia, surely it is damning with faint praise. As a matter of fact, the building looks better *in petto* on paper than full size *in esse*.

If Sion College has a useful foil in the Port of London block, how much more pronounced is this the case respecting the Asylums Board buildings and the contiguous block, housing H.M. Exchequer and Audit Department? The latter, too, is passable—in the strictly derivative sense, and we will at once pass on. It might act, indeed, similarly as a foil for Telephone House, did the latter need a foil; but these head offices of the shortly-expiring National Telephone Company suffice to themselves, they and Hamilton House forming interesting pendants to each other. In many respects they possess features of similar nature, and altogether they balance each other admirably. Telephone House is, perhaps, the somewhat stronger work of art, but Hamilton House can point out, *en revanche*, some defects in its neighbour arising from this very merit of strength. Indeed, we consider that Hamilton House (the work of Sir William Emerson) harmonises in a manner which Telephone House misses. The boundary walls and railings are satisfactory in both cases; but here also Hamilton House rises superior by reason of the admirable treatment of the stone piers.

The London County Education Offices (erected for the London School Board, 1884-93) are too big and important to be overlooked entirely, but fortunately they are very much hidden from the river view, and for this we will thank the intervening Gardens. Messrs. Bodley & Garner have done good work—so, too, has Colonel Edis, C.B. (in any case, in this building the latter architect merely completed externally the design of the former architects, and is therefore not responsible). But not caring to linger over this frontage, we will pass on to the consideration of the *chef d'œuvre* of Sir William Chambers, a man whom we may not perhaps call a great architect, but who assuredly occupies a niche which many would wish hopelessly to rival.

Somerset House is certainly undeserving of the chastisement verbally inflicted by James Ferguson. Its positive architectural merit is conspicuous, its negative failures inconsiderable. Practically it met with the approval of the contemporary authorities immediately concerned, though it aroused a stormlet of contemporary journalistic invective; but some of this was possibly of a political colour. It should, of course, be judged from its own terrace, not from the Victoria Embankment or from the river; but it is patent, from the lower level of the Embankment, how correct were Chambers's ideas respecting basement and strand treatment (for it is necessary to remember that, a century and more ago, the river washed up against Somerset House). It is possible that a criticism of coldness of effect might be levelled against it; but, surely, the very character of the building would justify such an effect. The river façade exhibits the rather rare use of the Composite Order and—curiously, too—with unfluted shafts to the columns; we may suppose that even Chambers thought it permissible at times to set aside his texts, in practice. The colonnades *en l'air* (we can scarce designate them as "screens") are pleasing and may possibly have provided Mr. Norman Shaw with the *motif* in some of his work.

Hitherto the bridges that we have passed have not been of a nature to attract our admiring gaze, though our attention may have been perforce arrested. But now as we shoot Waterloo Bridge we are confronted by one that is worthy of all admiration. We have read of "critics" preferring Southwark Bridge as "being grander, if less ornate," but though this to us seems a most perverse view, yet we are quite prepared to admit that to such critics our own views would bear the same character. An obvious criticism that might be offered is as to the wasted effect of the Gargantuan granite columns; it may, indeed, be urged that such effect is more pronounced in this work of John Rennie's than in the case of Blackfriars Bridge; but who would cavil at a single blemish where the *tout-ensemble* is so noble?

We cannot linger over the edifices between Waterloo and Charing Cross Bridges; they are but mediocre, saving the admirable little building, erected by the London County Council from the designs of the superintending architect, Mr. W. E. Riley. This work shows a low Portland stone façade, surmounted by a green-slated steep roof, crowned with a lantern. The building is small but complete in appearance and is a delightful little bit of modern Renaissance.

Between Charing Cross and Westminster Bridges there are some buildings of merit and originality. The National Liberal Club, by Mr. Alfred Waterhouse, and Whitehall Court, by Messrs. Archer & Green, do not, it is true, show originality, but they are certainly meritorious. These two buildings form one architectural scheme to all appearance; not that their designs are similar, but because of their absolute harmony. Our personal tastes do not permit us to appreciate highly the general appearance of the clubhouse, and we can certainly not rate it at the same value as most of Mr. Waterhouse's work. The polygonal corner block is good, but not extraordinary.

As regards Whitehall Court, it is both good and pleasing, exhibiting a variegated symmetry, such as may be cordially approved. Except we are to believe that the original scheme of design included in its scope the club as well as the mansions, the odd disposition of the roof pavilions would be remarkable; as it is, the balance is quite satisfactory.

A thoroughly heart-satisfying building is New Scotland Yard, the headquarters of the Metropolitan Police, and one of Mr. Norman Shaw's many masterpieces. Criticism, as in the case of some other buildings noticed, would savour of impertinence; we prefer to thank the Genius of architecture that here there is, at any rate, a practitioner worthy of succeeding Wren.

We cannot doubt that, from the view-point of the general public, the building of buildings, situated on the banks of the Thames, from source to mouth, is the Palace of St. Stephen's at Westminster, otherwise known as the Houses of Parliament. This is the *opus magnum* of Sir Charles Barry, occupying the last twenty years of his life, which he laid down just before the completion of his great work. For whether one approves or disapproves the building from the standpoint of architectural merit, it is undoubtedly a great work. The pity is that an architect of Classic tendencies should have been called upon to erect a Gothic structure; is there not something eminently governmental—British governmental—in this fact, that a Classically-minded architect should have been selected for a Gothic building, and that a Gothic enthusiast like Sir Gilbert Scott should have been compelled to alter his Gothic design for Government offices in Whitehall into a Classic (or, at any rate, a Renaissance) design? But facts must be accepted, even if they cannot be condoned. As regards St. Stephen's, how often have we regarded it with the unprejudiced desire of agreeing its merits as a fine work of architecture? and each fresh inspection but served to strengthen the previous opinion. The building is neither good Classic nor good Gothic; as hinted above, it has the air of suggesting that the architect desired to erect a Classic building, but was forced by the powers to clothe it in Gothic vestments. St. Stephen's shows no sense of rest, and we may fitly quote Thomas Carlyle, who wrote of it in the year 1850: "What earnest soul passes that new St. Stephen's and its wilderness of stone pepperboxes with their tin flags atop, worth two millions I am told, without mentally exclaiming 'Apage' and cutting some pious cross in the air? If that be ideal beauty, except for sugarwork and the more elaborate kinds of gingerbread, what is real ugliness? To say merely (with an architectonic trumpet-blast that cost two millions), 'Good Christians, you observe well I am regardless of expense, and also of veracity, in every form?' Too truly these poor Fine Arts have fallen mad."

But there! let us, for a change, turn our gaze to the opposite bank, where are congregated some buildings that are worthy of notice. St. Stephen's Palace is confronted with St. Thomas's Hospital, and we do not hesitate to say that more credit by far attaches to Mr. H. Currey here than to Sir Charles Barry opposite. The warm red of the seven blocks of the Hospital with their communicating corridors and outlying buildings presents to the eye a very pleasing picture. Nor does the Hospital lose at all in interest by reason of its proximity to Lambeth Palace, archæologically important and architecturally valuable as the latter is. No one can pass the Lollards' Tower without being impressed by its massive dignity, nor the Palace library without glorying in it as an English possession. Lambeth Church is more interesting within than it is externally, but it groups well with the Palace.

Messrs. Doulton's factories form the first purely commercial block on the banks of the river calling for notice as an architectural composition. Here we see two buildings of brick and terra-cotta, with good substantial pavilion blocks at each angle, crowned by steeple roofs; the inharmonious feature in the group is the ungainly chimney-stack.

The National Gallery of British Art at Millbank is a building demanding appreciative recognition. A four-square pile, treated thoroughly symmetrically and properly insulated; here we see, for the first time since leaving Greenwich, such an entirely satisfactory work of art on an important scale as may worthily occupy a position facing the same river as Greenwich Hospital itself. For other satisfactory buildings that we have noticed cannot compare in artistic and civic importance combined with the Hospital and the Art Gallery. And in this case symmetry is not only justified but proper; the building and the Thames are mutually worthy of each other, and it is with a rare pleasure that we raise our hat to Mr. Sidney R. J. Smith, the architect, and mentally thank Sir Edwin Tate for his generous donation to the British public.

The church of Holy Trinity, in Bessborough Gardens, is one of the very few churches that confront the Thames. Mr. John L. Pearson was fortunate in having two of his architectural *chefs d'œuvre* so picturesquely situated. The Astor Estate Office has been already noticed; and here we see one of the many good churches that Mr. Pearson produced. The finely-proportioned tower and spire (the latter squinched and ribless) deserve close attention.

There will be other churches to mention later. Now, our eyes are turned to Chelsea Hospital, where Wren is again in evidence. Whether we regard the domesticity of the building, its proportions, or its harmoniousness, we are equally struck by its merits. What modern architect would be so venturesome as Sir Christopher in the design of such a very unadorned building? What modern architect, except, possibly, Mr. Norman Shaw? Here, as in Greenwich Hospital, we find the advanced wings, not that there is anything extraordinary in this treatment, but its effectiveness is indubitable.

Along Chelsea Embankment are congregated many specimens of domestic architecture—some worthy, others unworthy. With the latter we will not burthen this article; but who can fail to be pleased with the quaint and artistic "Queen Anne" façades erected some thirty years since, but so well harmonising with the original Chelsea as to form apparently an integral contemporary portion of it? And these façades carry us on to another interesting building, the old parish church, by no means a thing of beauty externally, though picturesque withal; but the appearance of it suggests an inspection of the interior, where a visitor is at once repaid for the tracing of his footsteps through the portal. Of a surety the curiously treated brick tower of the church, and the agglomeration of its parts do not suggest an architectural conception; but let it pass, absolved by the merits within doors.

From this church, as far west as the parish church of Putney, we draw blank, for the buildings seen *en route* do not call for detailed description, or even for passing notice. But now, as we reach Putney Bridge, we see on the right and left banks two old churches, respectively belonging to Putney and Fulham. In them there are many points of difference, but there is, all the same, the sensation of a bond of artistic sympathy in the treatment of the towers. To enlarge upon this is useless—the churches need to be seen for the sensation to be appreciated.

And then we skim over the waters for some distance in gloomy discontent, until, in fact, we pass under Hammersmith Bridge, when along this, the concluding stretch of river frontage we feel that whatever good work may have hitherto met our admiring gaze, there is at least no anticlimax here, for the many tit-bits of old domestic architecture are pleasantly varied with more modern but not less worthy work. Yes; we must admit that by the bridge itself there is a disfiguring stretch of frontage, but that once passed, and we drift along to the metropolitan limit at Chiswick in sweet content—in such content, indeed, that we are not concerned to describe to ourselves or to our readers any of the buildings in detail, preferring rather to regard this Hammersmith bank as a fitting crown to our lengthy journey.

VENTILATION IN CONFINED QUARTERS.

Introductory remarks by Leonard Hill, M.B., F.R.S., in a discussion at the British Association meeting, Portsmouth.

Carbonic acid up to three to four per cent. of an atmosphere has no noteworthy physiological effect excepting that it deepens the breathing. Smaller percentages of one to two per cent. are of no account. The breathing of six per cent. produces headache, palpitation of the heart, sweating, and the breathing becomes distressing. Higher percentages, eleven to twelve per cent., produce coma, but do not quickly destroy life. The partial pressure of CO_2 in the pulmonary alveoli and the concentration of acid (hydrogen ions) in the blood is kept constant by the automatic regulatory action of the acid in the blood on the respiratory centre of breathing.

An atmosphere containing one to two per cent. of CO_2 simply deepens the breathing to such a degree as to keep the acid concentration in the blood constant. Thus, apart from the extra breathing, carbonic acid has no effect on the body (Haldane). Diminution of the partial pressure of oxygen by one to two per cent., and even by three to four per cent., of an atmosphere, also has no effect, as we see by the fact that men live in health and vigour on high mountain plateaux where the partial pressure of oxygen is reduced by one-quarter or even one-third. The great affinity of hæmoglobin for oxygen enables man to wander through wide variations of barometric pressure, to quarry mines, and build railways, and execute some of his greatest works at a height of 15,000 feet in the Andes. Marten Flack and I have investigated the composition of the air in the sleeping-chamber of rats. If it is cold outside, the rats prefer to sleep in air containing as much as four to five per cent. CO_2 and only fourteen per cent. O_2. If the sleeping-chamber is hot and moist, the rats come outside. The discomfort and depressing effect of badly-ventilated dwelling rooms, workshops, schools, and meeting houses has, therefore, nothing to do with the chemical purity of the air, so far as concerns CO_2 and O_2, and Haldane has disproved by exact experiment the existence of any poisonous organic chemical matter in the exhaled breath. The ill-effects are mainly due to the effect of the close air on the temperature regulating mechanism and cutaneous nerves. The only reason for maintaining a high standard of chemical purity of the air of dwelling and working rooms is to prevent unpleasant smells arising from dirty clothes, sweat, and floors, and to keep down the mass influence of infecting bacteria.

Too much importance has been paid to the chemical purity of the air, and not enough to the temperature. It is most necessary to maintain the coolness and movement of the air, for this promotes the metabolism and activity of the body, and by stimulating the cutaneous nerves keeps up the tone of the body.

Our immunity to disease depends on the quality of the blood, and the supply of blood to, and of tissue lymph which transudes from the blood vessels into, each part of the body. The quality of the blood depends on the foodstuffs digested and absorbed into it, and on the mutual interaction of the organs which elaborate and purify the blood. The blood is circulated not only by the pumping action of the heart, but by each muscular movement and change of position, for the valves are set cunningly in the veins, so that each and every movement sends the blood swirling onward in its course. Above all, the breathing movements forward the flow of blood from the organs of the belly to the heart.

Now the activity of men engaged in sedentary indoor occupations depends very largely on the temperature and humidity of the air. If the air is over warm, windless and moist, we are slack, and losing less, we produce less heat. So we come to eating less and breathing less. The organs of the body then have a more restricted choice of building stones from which to elaborate the blood, and the blood moves in more sluggish streams through the outlying territories of our bodily world. Thus our first line of defence is weakened. If the air is cool and moving we are braced up and are active, eat more and breathe more. The blood is refined out of a large choice of foodstuffs, and the organs receive an ampler supply of the rarer and more precious of the chemical complexes—the building stones into which the digestive juices break down the foods. More oxygen is taken in, the daily turnover of the body factory is enlarged, and the blood which barters the rich merchandise of the organs one with another moves in ampler and quicker streams.

Our feelings of vigour and well-being depend, too, on the ceaseless in-flow of sensations from the sense organs. Taking a great part in the conscious term of these sensations are those from the skin. The cutaneous sense organs are influenced by the temperature, and by the relative humidity of the air, which controls the evaporation of moisture from the skin, and the passage of tissue lymph from the blood into the skin, and this influence has potent effect on our mental state. A warm, moist atmosphere brings much blood into the skin and depletes the viscera which perfect the blood, and robs the brain of an ample flow. The humidity and temperature of the air affect the mucous membrane of the nose and respiratory air-way, and the evaporation from and flow of tissue lymph through it, factors which must control largely both our comfort and varying immunity to catarrhal infections.

In battleships the great difficulty is to secure a good ventilation without excessive cooling of the individual. The space is confined, and the men next the ventilating orifices, feeling cold, shut them up. The conditions are such that a man with tubercle bacilli in his sputum is very liable to infect others whose natural immunity is deficient. The mass influence of the dose must tell heavily here. In small fishing boats the men shut up the cabin and sleep in air in which the lamp may finally go out from want of oxygen (less than 17 per cent.). Men with tubercle ought to be at once weeded out of battleships. The introduction of the electric fan in India has increased the power of the European to sleep and work beyond measure. I believe every employer and benefit society would find it pay both in increased output of work and lessened loss from ill-health, if every factory and workshop were brought below 60° F. and well swept with currents of air. We accustom ourselves to live in rooms that are too warm.

I visited recently the Leo Road London County Council school, where every room is swept with a gentle current of air at 57° to 60° F. by a plenum system. The courteous head-master told me the lost attendances from infectious diseases were fewer than 1,000 per year, while in other schools they reach 10,000 and more. The rooms felt cool and pleasant, and the children and masters appeared fresh at 4 p.m. The parents say the children eat more when they come to school.

Haldane has insisted on the necessity of paying attention to the wet-bulb temperature in factories and mines. This applies also to ships. The wet-bulb should not exceed 75° F., and must be kept below 70° F. For high wet-bulb temperatures a better current of air must be supplied. I have enclosed half-a-dozen students at a time in an airtight chamber containing about 3 c.m. of air. After about half-an-hour the CO$_2$ has risen to 3 or 4 per cent., and the temperature has reached about 85° F. wet-bulb. The men are then very greatly relieved by putting on electric fans on the roof, which whirl the stationary stale air in the chamber and cool their bodies.

I find that while raising the percentage of CO$_2$ suddenly from 1 to 2 per cent. has no appreciable effect in increasing the discomfort, putting the fans on or off makes a very great difference. The stationary air entangled between the bodies of the men becomes warmed to body temperature and saturated with moisture at body temperature. They cannot lose heat by radiation to each other. The skin becomes warm, flushed, and bathed in sweat. Putting on the fans whirls the air round and brings the cooler air (at 85° F.) in contact with the body, and so promotes loss of heat by evaporation of the sweat and convection. Benedict has kept men for twelve days in his calorimeter with a very deficient ventilation current. So long as the chamber was kept cool they kept in health and comfort, worked hard and had no sense of closeness.

Carrying out a series of work experiments in our chamber with Messrs. R. A. Rowlands and H. B. Walker, I find the pulse frequency is more accelerated during the work and takes longer to slow down again when the fans are off than when they are on. The pulse frequency depends on the wet-bulb temperature, and the CO$_2$ percentage makes relatively little difference to it. The breathing volume, on the other hand, depends chiefly on the CO$_2$ percentage.

Remarks by Professor N. Zuntz.

Dr. Leonard Hill in his introductory remarks refutes the idea of the harmful action of carbonic acid up to three or even four per cent. of the atmosphere, and he also attributes no importance to any substances exhaled by the organism together with the carbonic acid. I can agree with this view in so far as the great number of positive data on the poisonous action of the exhaled products of living animals is opposed by excellent experiments in which no sort of noxious effect could be demonstrated. This innocuity seems well proved for man by the experiments of Benedict in Atwater's respiration calorimeter. On the other side, noxious effects have been stated in guinea-pigs—that means in animals whose bowels are the seat of intense fermentations. The idea that the products of those fermentations may be poisonous in some cases is supported by the fact that there exist diseases in man which are considered as caused by poisonous substances absorbed from the intestines. Why may not one or another of those poisons be volatile, as SH$_2$ is? Moreover, one may object against the conclusiveness of Benedict's experiments, that he circulates the air of his chamber through great vessels containing concentrated SO$_4$H$_2$. This acid may destroy the volatile toxins of the air and so keep their quantity on a low innocuous level.

For some years I have considered in my lectures on the hygiene of domestic animals the prevention of excessive moisture of the air in stables as the most important aim of ventilation. But I have not only had in mind that special point, the importance of which Dr. Hill has explained so clearly—that is, the prevention of a sufficient cooling of the body when the evaporation from the skin is interfered with by the saturation of the air with vapour. As soon as the air is saturated there begins a condensation of water at the cooler parts of the walls. This condensation obstructs the capillary pores of the walls and diminishes the ventilation through them. So the removal of moisture is interfered with more and more, and a vegetation of bacteria and mould sets up in the walls and produces noxious gases and vapours. The same thing often happens in newly-built houses, when they are inhabited before the hydrate of lime has been changed into carbonate.

If we ask, now, how to provide for the ventilation of a room to prevent the condensation of vapour, we may make the following calculation. A man excretes in twenty-four hours *in minimo* 800 gr. CO$_2$ and 1,000 gr. H$_2$O vapour, that means at a pressure of 760 mm. = 400 litres CO$_2$ and 1,600 litres H$_2$O. If the ventilation would keep the content of CO$_2$ in the confined air as low as 0.25 per cent., the quantity of vapour added to the moisture of the entering fresh air would be 1 per cent., that is 7.6 mm. tension of the vapour. This added to that of normal outside air of medium temperature would bring its humidity near the point of saturation. So we understand that the limit of CO$_2$ content, which Pettenkofer empirically found to be consistent with the feeling of euphoria of the inhabitants of a room, is really that limit at which the danger of condensation of water at the walls begins.

Now we easily understand that a much larger quantity of CO$_2$, up to 2 per cent., produced no inconvenience in Atwater's respiration chamber, where the moisture was continually condensed by the heat absorbers, which keep the temperature of the chamber on a constant level. In the result we cannot agree totally with Dr. Hill's conclusion that movement of the inside air by fans, which cools down the temperature of the skin, may replace normal ventilation with fresh air. Such action of fans will certainly elevate the efficiency of the included working men to normal height for some hours. But if we wish to keep the room in a sanitary state, we must either increase the fresh-air ventilation to the standard prescribed by Pettenkofer, or we must condense and eliminate the overplus of moisture by cold surface, as it is done in the apparatus of Atwater.

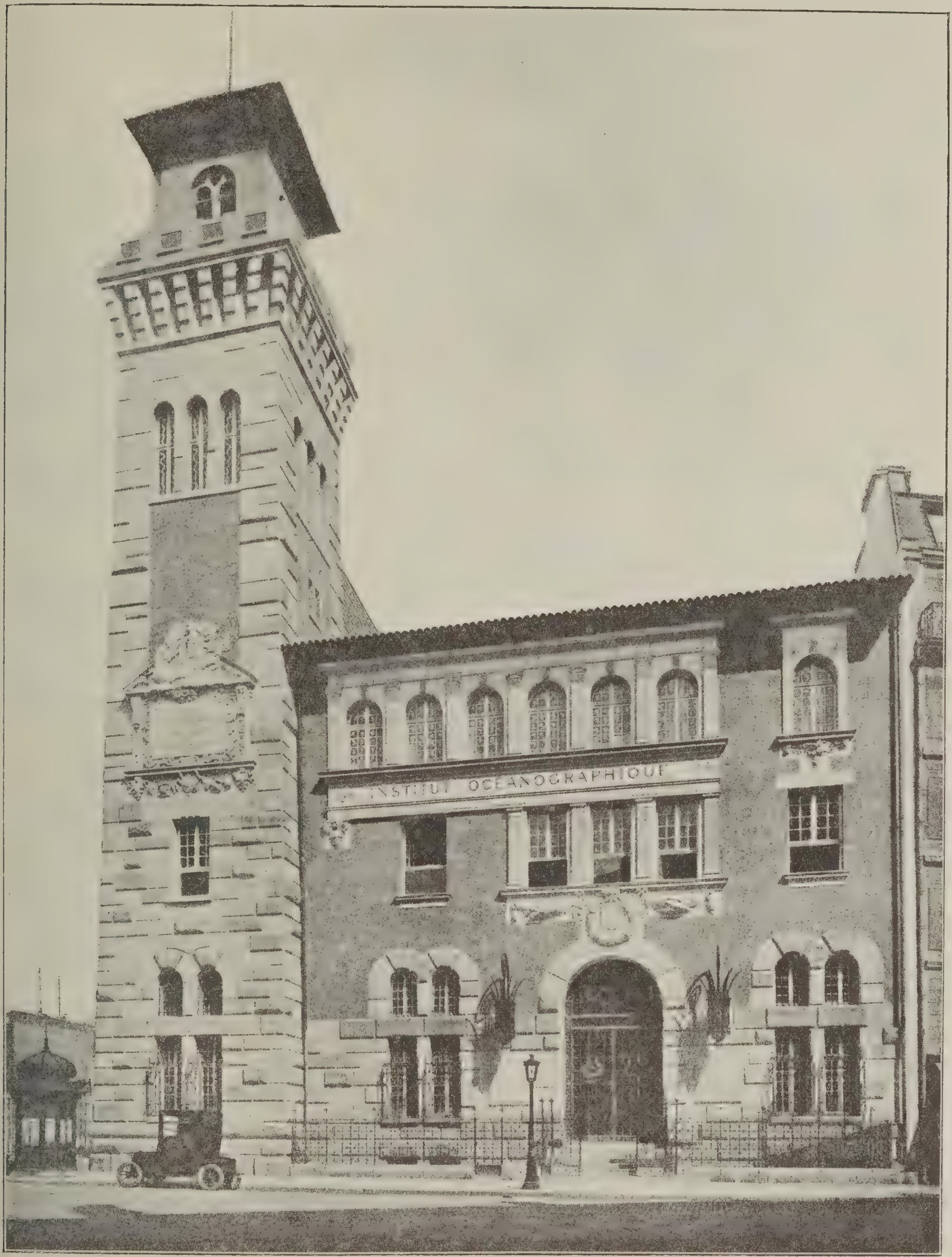
A PREHISTORIC SITE AT BISHOP-STORTFORD.

Report to the British Association of the Committee, consisting of Professor W. Ridgeway (Chairman), Rev. Dr. A. Irving (Secretary), Dr. A. C. Haddon, and Dr. H. W. Marett Tims, appointed to co-operate with a Local Committee in the excavation thereof. (Drawn up by the Secretary.)

The early facts which suggested the prehistoric interest of this site were brought to light in the excavation of a boggy patch of ground in the high flank of the Stort Valley at nearly 300′ O.D., the idea being the formation of a "lily-pond" to improve the ground above Maple Avenue as a building-site. In this way, by the care of the experienced workman, F. Curtis, the complete horse skeleton (on which a Paper was read last year to Section H by myself, the cogent geological facts being treated in a Paper read before Section C) was uncovered, in the exact position indicated in the photographs. The "finds" on the actual site, taken altogether, suggest its occasional and repeated occupation by nomadic peoples (attracted by the high-level spring, to which

MODERN EUROPEAN ARCHITECTURE.

FRANCE.



[From *La Construction Moderne*.

THE OCEANOGRAPHIC INSTITUTE, PARIS.—Mons. NENOT, Architect.

the physiographic details of the locality are due) after the fashion of a gipsy-camp.

In 1910 the following gentlemen formed themselves into a Local Committee for the further exploration of the site where the horse skeleton was unearthed: Rev. A. Irving, D.Sc., B.A. (Chairman and Secretary); J. Dockray, Esq., M.D., B.Sc.; W. Hartigan, Esq., M.D.; Rev. H. Hollingworth, M.A.; A. W. Nash, Esq., M.A.; F. S. Young, Esq., M.A.; Mr H. G. Featherby, C.E.; Mr. Joseph Day (the proprietor). In response to the appeal made at the time subscriptions to the amount of £7 2*s.* were received. Of this sum £6 2*s.* was expended for skilled labour and contingent expenses. Subsequent subscriptions have brought the amount (paid and promised) up to £11 18*s.* The total expenditure up to the end of July 1911 has been £7 2*s.*, leaving a balance of £4 16*s.* in the hands of the Secretary for further work.

In the autumn of 1909 the geological structure of the hill was more fully determined by two borings on Mr. Day's land and two on Sir John Barker's land above. The facts thus ascertained confirm generally those previously known from the two well-sections at the waterworks 350 yards distant. (See *Mem. Geol. Survey*, vol. iv. p. 449.) In May 1910 the pond was drained and the bottom of it thoroughly explored. The mud was first scraped off the bottom and passed by two workmen through a screen under the supervision of Mr. H. G. Featherby and myself. It was then dug all over to the full depth of a shovel without finding the slightest trace of anything that could be associated with a modern horse. A considerable addition was made, however, to previous prehistoric "finds," and a Holocene molluscan fauna was discovered in the bog silt. The silt was in places strewn with shelly débris, and it was only with the greatest care that complete specimens could be secured for identification. Of these the following have been identified by Mr. B. B. Woodward, F.G.S., of the British Museum (Nat. Hist.): Helix nemoralis, Hygromia (Helix) hispida, Vitraea nitidula, Succinea putris, Pyramidula rotundata, Helix arbustorum. Clausilia was, I think, also found, but unfortunately got crushed at the Museum before it was identified. A small bivalve was fairly frequently met with, which I have identified at the Jermyn Street Museum as Pisidium.

Of the fossil shells mentioned above it may be pointed out that six at least of them have been noted in the Holocene deposits at Staines, six have been described from the Barnwell Gravels, and three are described by Von Hauer as characteristic of the diluvial loess of the Rhine and the Danube.

Reasoning from the geological data, the writer of this Report was led at an early stage of the investigation to conclude that the formation of this bog must have taken place in early post-glacial times; that inference seems to be confirmed by the palæontological evidence.

In the Paper read last year before Section C palæolithic and neolithic flint implements and "cores," fragments of baking-tiles, fragments of pottery (neolithic and bronze periods), primitive bricks moulded with human hands, an ingot of crude bronze, fragments of charcoal, and a variety of erratic boulders are enumerated. These were recovered by turning over the materials which had been wheeled out of the pond-basin, together with several missing small bones of the skeleton. The tile-fragments and mammalian bone-fragments are numerous; a caudal vertebra of Bos, and a few molars of Bos and Equus were also found; and the vegetable contents of the beast's paunch, reduced to a state of peat (one cake of it strongly stained with phosphate of iron), partly within, partly without, the trunk of the skeleton, the skeleton having as a whole been deformed and the vertebral column thrown into a curve by the invasion of the bog by a later landslide on the side where the feet lay.

Owing to the adverse weather of the early spring and the indifferent health of the Secretary nothing further was attempted; and when the fine weather set in time was lost through the difficulty of obtaining the services of the specially experienced workman who excavated the pond-basin. Little progress, therefore, has been made, but the results obtained have added to our knowledge, and go to confirm the inferences which had been drawn from the facts previously known.

Method of procedure:—

(i.) A trench 4 feet deep was driven to the right, and a similar trench to the left, from the line of the present streamlet below the pond well into the undoubted London clay *in situ* behind the "rubble-drift";

(ii.) A trench has been dug below the pond up the line of the ancient gully, which was found completely choked with *remanié* clay of the character of blackish bog-silt. At a depth of four feet below the present surface of the hill-slope a fine angular flinty shingle with several erratics was dug into, clearly marking the line of the ancient gully, which the stream had cut into the flank of the hill in post-glacial times. This was observed to be in a line with similar indications of the ancient line of the stream, across which the trunk of the horse was seen to have lain when it was removed in 1909. It may be said that no one who has had extensive observation of the Eocenes could recognise these phenomena as having anything to do with the London clay, which constitutes the solid geology of the hill behind, as it had been proved in the trial-borings of the autumn of 1909, and exposed in recent excavations for building along the same contour of the hill slope. Of the "finds" from this trench on the arterial line of the ancient gully the following list is given:—

A. Mammalian remains:—

Four very rotten fragments of split marrow-bone, one lower premolar of Equus (broken).

B. Human artefacts:—

Fragment of a gritstone hand-mill, two fragments of extremely primitive half-baked tiles; one clinker; five or six (apparently) "pot boilers"; about a dozen flints, possibly recognisable as "cores" or "scrapers," two of them "patinated."

The erratics from the three trenches include:—

Two good-sized boulders of volcanic ash, small boulder of weathered dolorite, a sub-angular fragment of jasper, four moderate-sized pebbles of vein-quartz, two rolled fragments of coarse white gritstone, a rolled fragment of Röthlschiefer (Permian?), a slab of red ferruginous sandstone (Jurassic?) two inches thick, a slab of white fine-grained sandstone (Keuper?) one inch thick.

To these must be added flints without number, nearly all in a highly weathered condition, some extremely so, several showing the etching action of organic (humus) acids, while others bear unmistakably the marks of long surface-exposure (possibly during the great Miocene elevation) before they were picked up by the early ice, which deposited the glacial drift which caps the hill, and from which these erratics must have been brought down, since the deposit is at a higher level than the true chalky boulder-clay of the district. Eight at least of these highly altered flints have been not only bleached but *scaled,* after the fashion of those brought years ago by Captain H. G. Lyons, F.R.S., from the Egyptian desert. Scarcely a fresh flint was found in the course of the excavations, and it may be inferred that these extremely altered flints have been transported in many cases by ice-agency from Mercian regions far beyond the present chalk escarpment to the basin of the Thames.

The Committee ask to be re-appointed. A grant of £5 is asked for to supplement the local fund, for the purpose of continuing the work of excavation above the pond, and (with the proprietor's permission) extending the operations into the adjoining land.

Note.—This year (1911) extensive excavations connected with public works have been made in the peaty alluvium and the underlying glacial shingle of the Stort Valley. Most valuable "finds" have come to hand from these, including pleistocene mammalian remains, as well as bones of Equus and Bos longifrons, the former tallying remarkably with the bones of the Maple Avenue skeleton. But as these excavations do not fall under the purview of your Committee, they are dealt with in a separate paper communicated to Section H.

COMPETITION NEWS.

Whitley Bay.—The Whitley and Monkseaton Urban District Council recently invited architects practising in Northumberland and the city of Newcastle-on-Tyne to submit competitive designs for the chapels, house and cemetery wall in connection with the new burial ground. Mr. A. W. S. Cross, the assessor nominated by the President of the R.I.B.A., has given his award as follows:—Mr. Ed. Cratney, of Wallsend, first; Messrs. Oliver & Leeson, Newcastle, second; and Mr. Scaife, Whitley Bay, third. The plan of Mr. Cratney has been adopted by the authorities, who have decided to make application to the Local Government Board for sanction to borrow £5,000 for carrying out the scheme.

Mr. G. T. Brown, F.R.I.B.A., architect, Sunderland, has been called in by the Sunderland Education Committee to advise them as to the requirements of the Board of Education in connection with the proposed alterations to the Bede Collegiate School.

The Glasgow Corporation have accepted the tender of Messrs. John Train & Taylor, Dalmarnock Bridge, amounting to £24,592, for the reconstruction of the Corporation art galleries in Sauchiehall Street and Renfrew Street. At the meeting of the Corporation last week a communication was read from the Glasgow and West of Scotland Building Trades Employers' Council with reference to the giving of the whole contract to one firm, who sub-contracted with the different classes of tradesmen. In the subsequent discussion it was explained that the City Finance Committee were in favour of the system of contract suggested in the communication, but as the work would have to be carried out in a small area, and if they did not get the job done in time they ran the risk of losing twelve months' occupancy of the premises, they considered it necessary to have the work in the hands of one contractor, so that they could have closer supervision over him. A Bailie said it was a vicious system. He thought in future all classes of tradesmen ought to have an opportunity of tendering separately for such work. It was pointed out that in such cases the committee were supplied with a list of the sub-contractors by the contractor. The minutes were approved after discussion.

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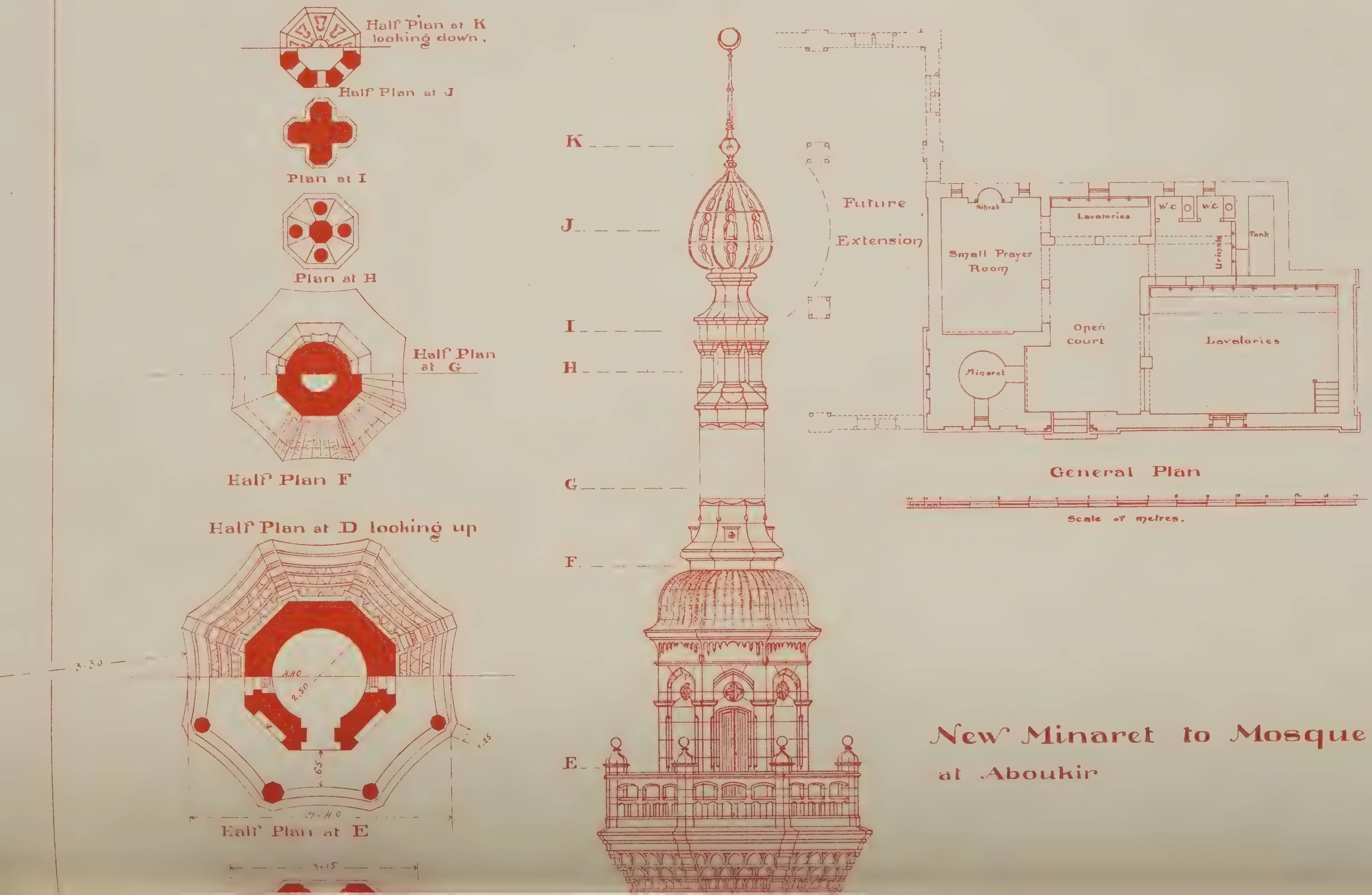
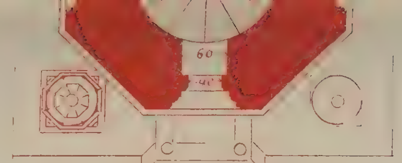
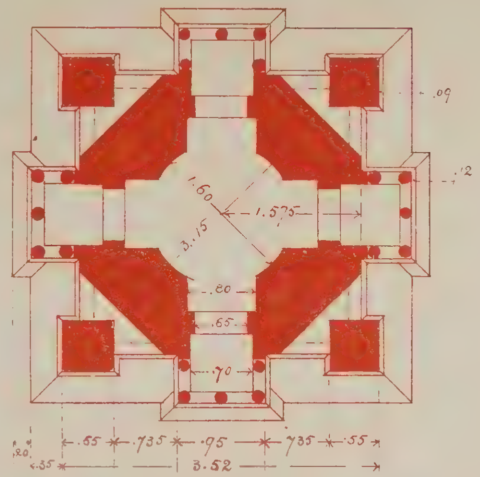
New Minaret to Mosque

at Aboukir

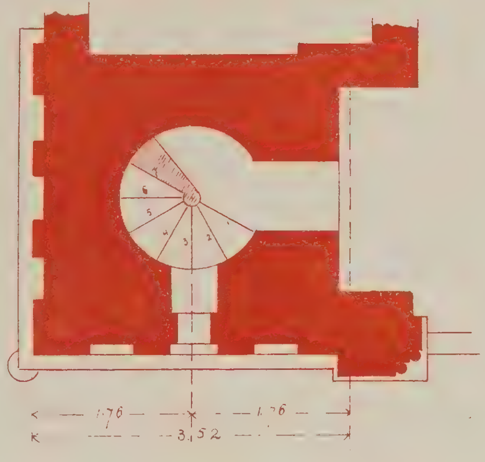




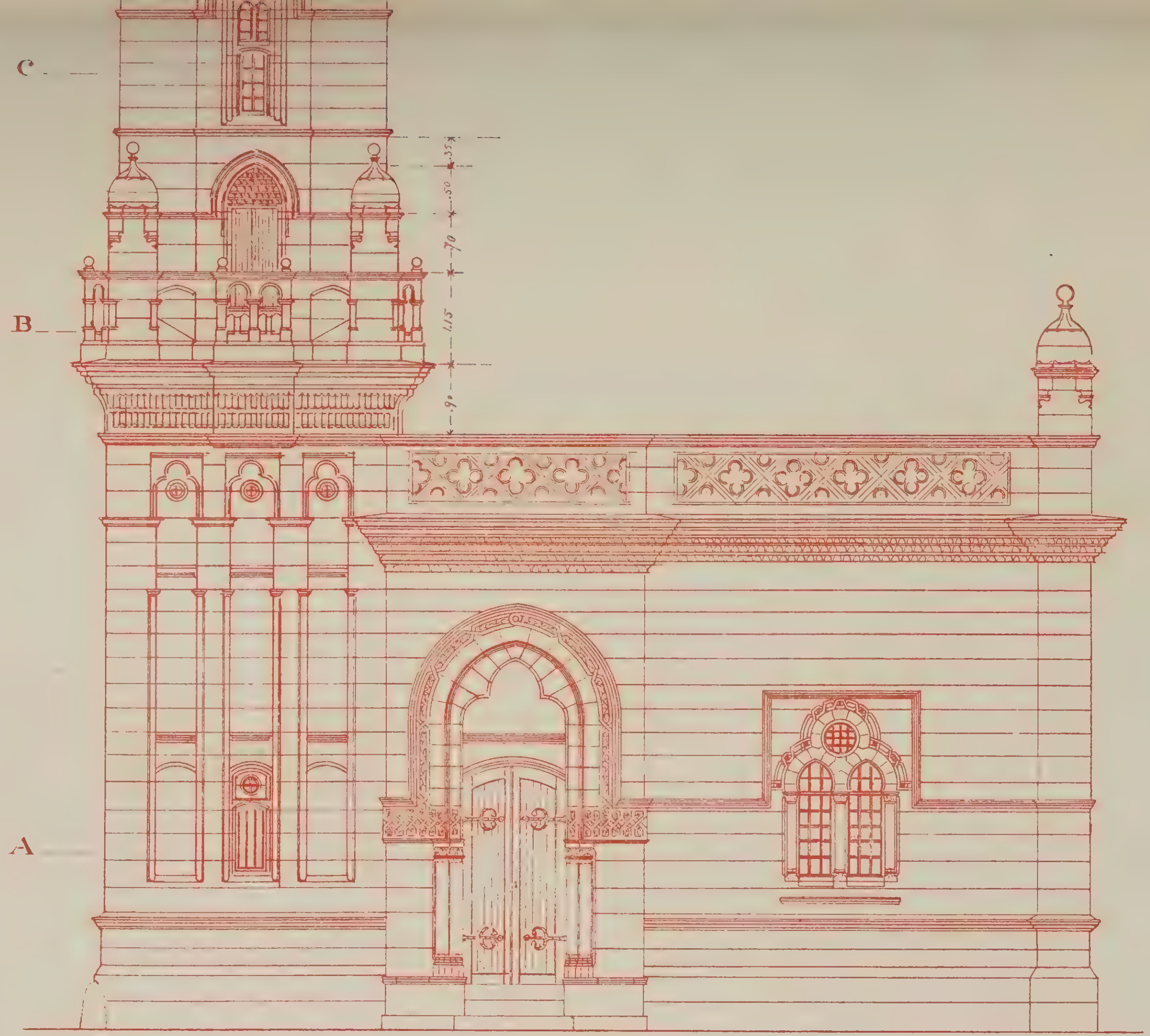
Plan at C



Plan at B



Ground Plan at A



Elevation

Robert Williams
18.5.1906

Scale of metres.

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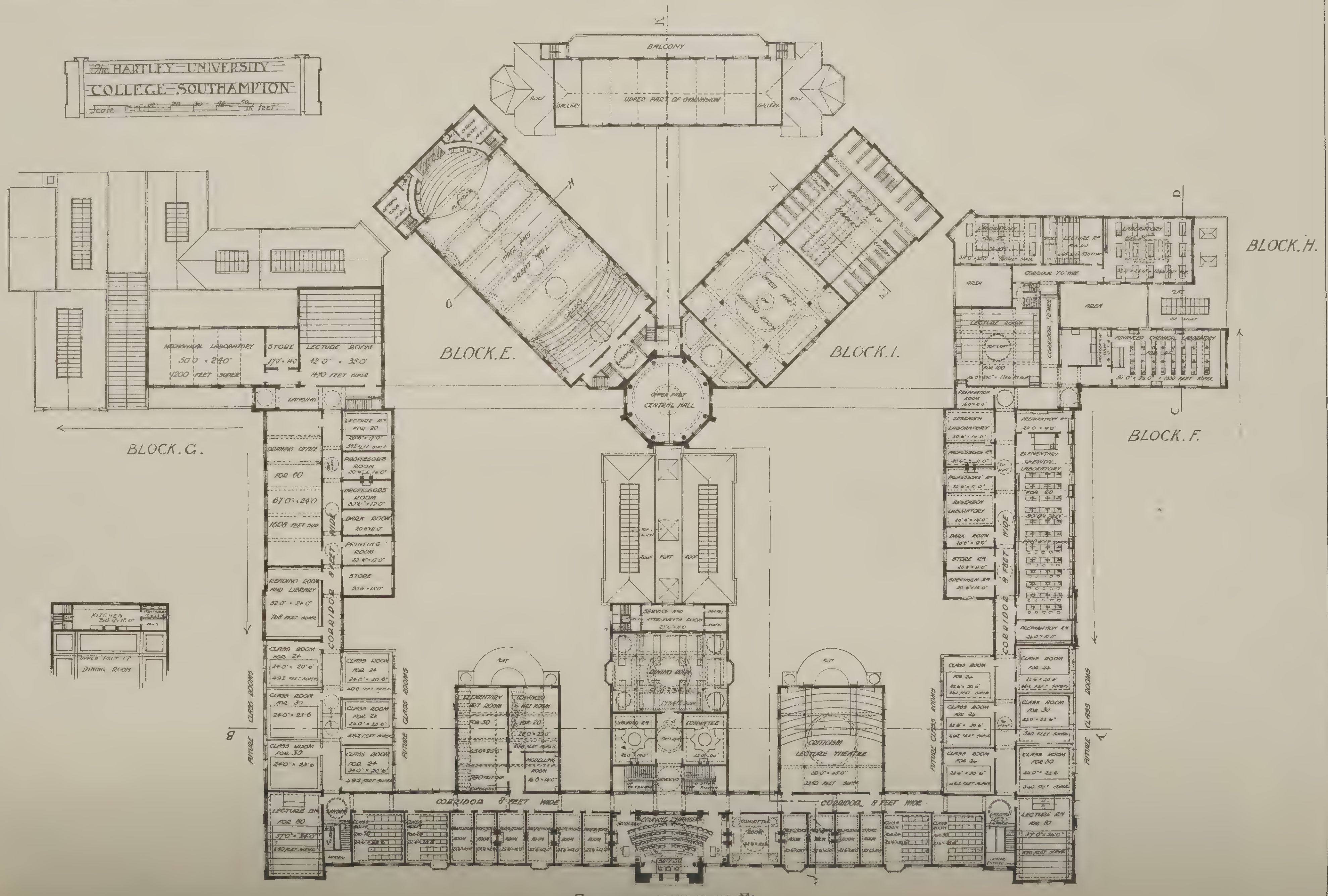
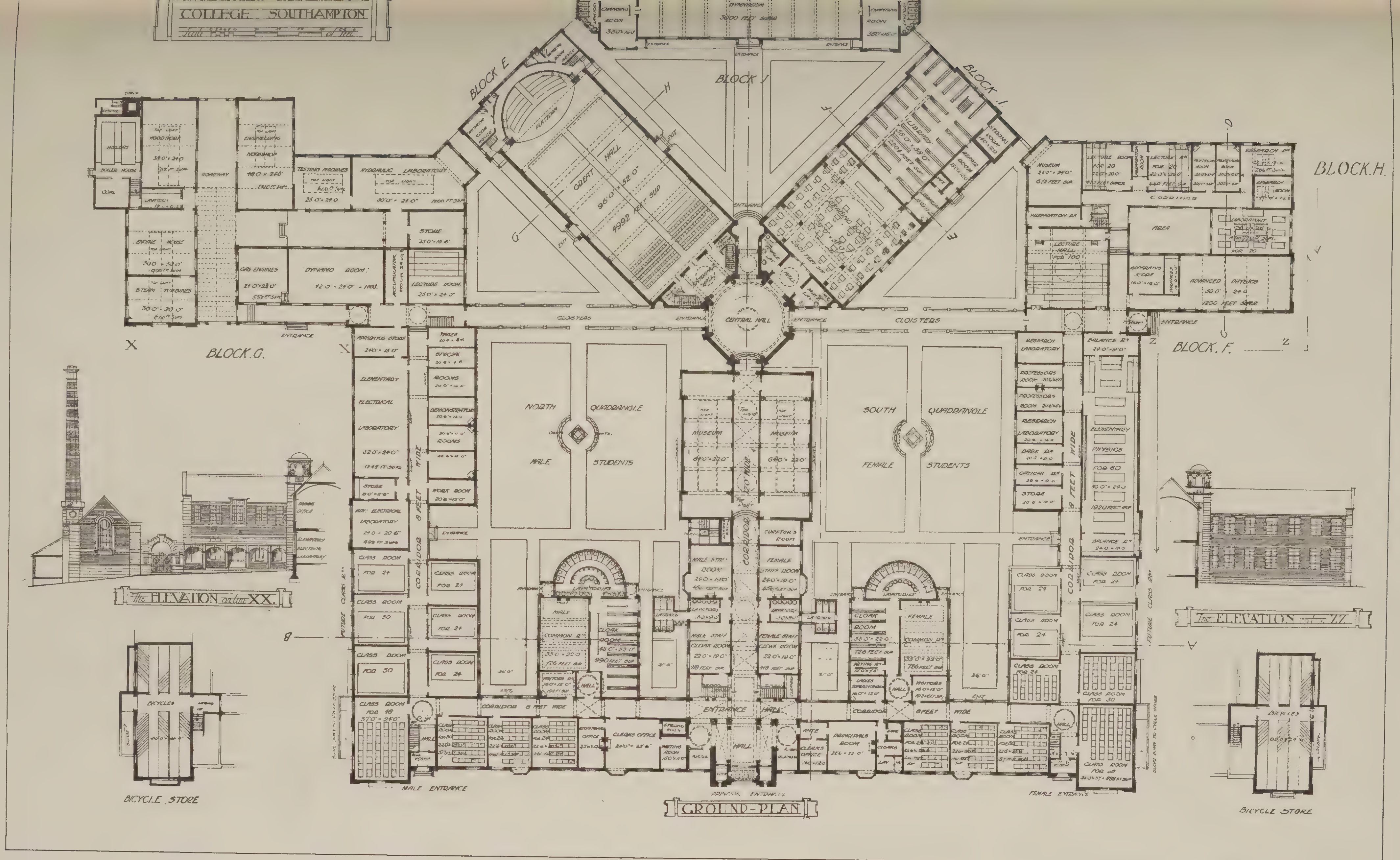
The HARTLEY UNIVERSITY COLLEGE SOUTHAMPTON

Scale 10 20 30 40 50 of feet.



The FIRST FLOOR PLAN



THIRD PREMIATED DESIGN FOR THE HARTLEY UNIVERSITY COLLEGE, SOUTHAMPTON.

Messrs. HICKTON & FARMER, Architects.

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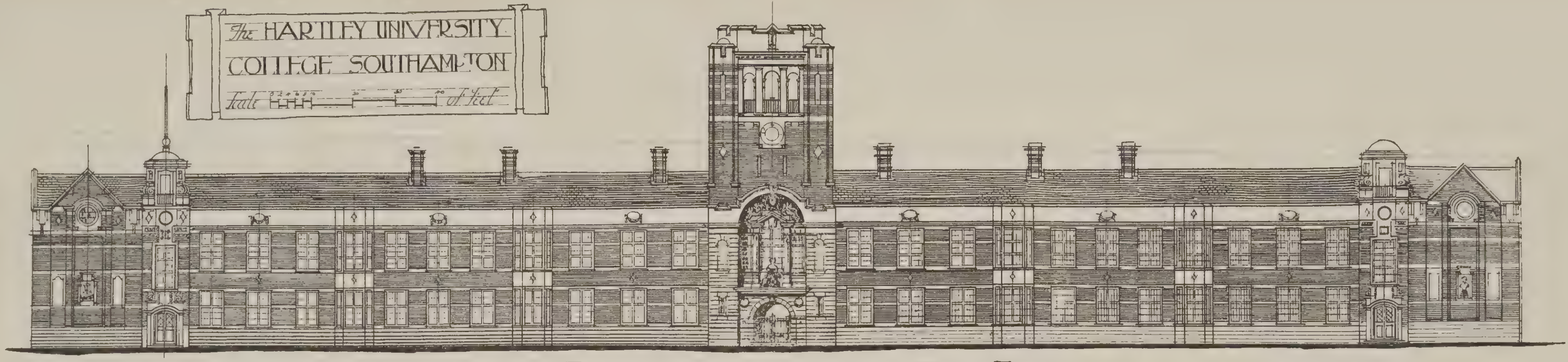
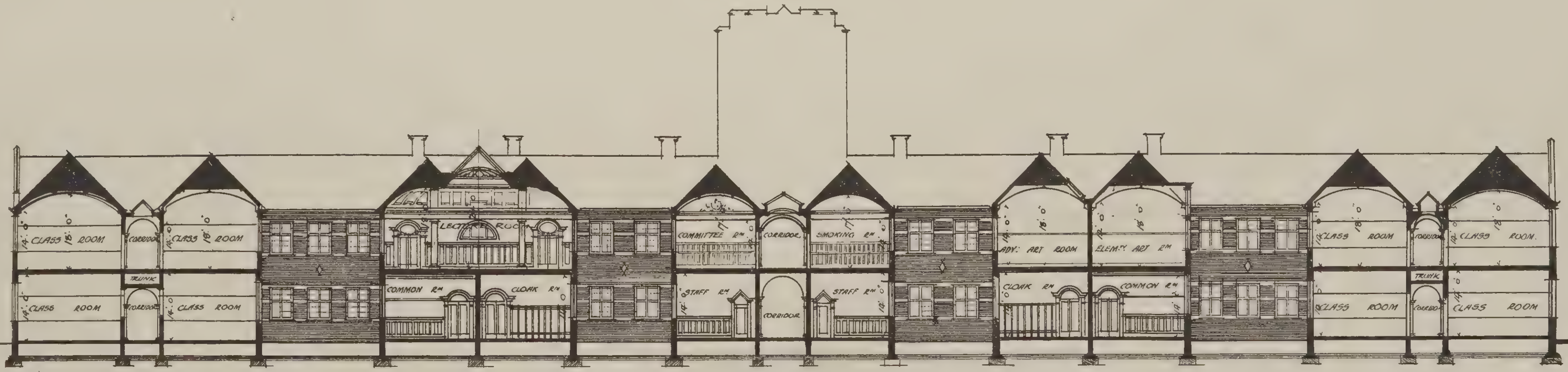
The HARTLEY UNIVERSITY COLLEGE SOUTHAMPTON

Scale 0 2 4 6 8 10 20 30 40 of Feet

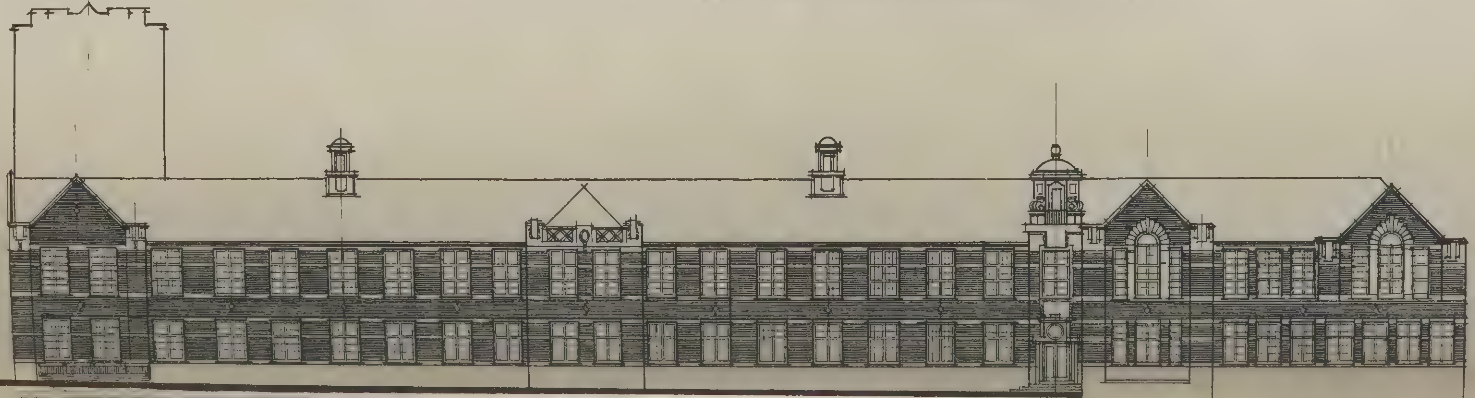


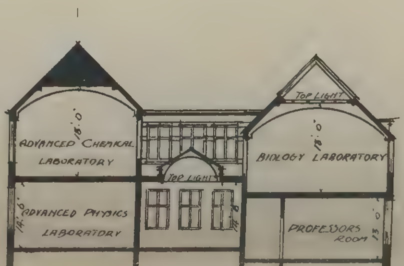
The WEST FRONT facing CHURCH LANE

Arts and Administrative



The SECTION on line AB.





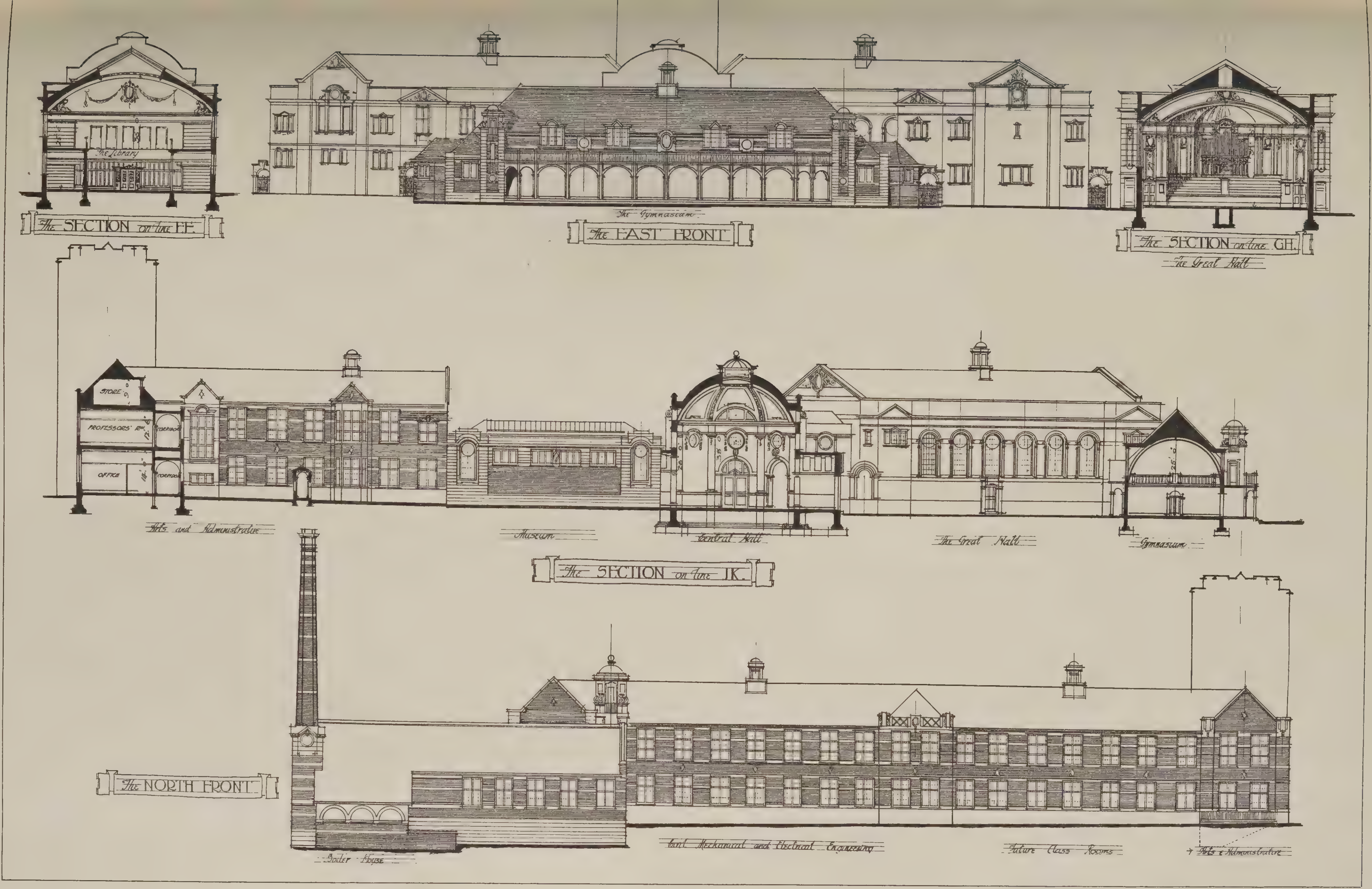


PHOTO-LITHO SPRAGUE & Cº Lº 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

THIRD PREMIATED DESIGN FOR THE HARTLEY UNIVERSITY COLLEGE, SOUTHAMPTON.

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The Architect.

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FORTHCOMING EVENTS.

Saturday, September 30.

Guild of Architects' Assistants : Visit to St. Andrew's Hospital, Dollis Hill Lane, Cricklewood (Mr. R. L. Curtis, architect).

Architectural Association : Camera, Sketch and Debate Club Visit to Cambridge (two days).

Monday, October 2.

Victoria and Albert Museum : Public Free Lecture by Mr. Banister F. Fletcher on "Renaissance Architecture."

L.C.C. School of Building, Brixton : Lecture on Brickmaking by Mr. A. E. Brown, B.Sc. (Lond.).

International Congress of Architects opens at Rome (Oct. 2-10).

Architectural Association : Annual General Meeting ; President's Address by Mr. Gerald C. Horsley, F.R.I.B.A., and Distribution of Prizes.

Tuesday, October 3.

British Museum : Public Free Lecture by Mr. Banister F. Fletcher on "Ancient Architecture."

Opening of Exhibition of Old Masters in aid of the National Art-Collections Fund, Grafton Galleries, Grafton Street, London, W.

Saturday, October 7.

Institution of Municipal Engineers ; Joint Meeting of Yorkshire and Northern Districts, at Leeds.

A PAIR OF COTTAGES AT ASHTON

HOLIDAY HOMES.

In the supplement which appears for the first time in the present issue of *The Architect* are a number of designs for small houses which are suitable for use as holiday homes, whether for week-ends or for longer vacations, and we may, therefore, consider in what directions a holiday home should differ from any other.

The idea of a holiday seems to connote a change from one's ordinary method of living, an absence of formality and strict routine, location amidst country or seaside surroundings, and a larger proportion of outdoor existence. It is not necessary or desirable, therefore, that a week-end cottage should be planned on the same lines as a town house or even a suburban villa. Reception rooms are not wanted, but a large and roomy living-room, which will serve not only as a general sitting-room, but also for meals. It makes for picturesqueness and piquancy in such a living-room if there are plenty of bays, recesses, alcoves, or nooks, one of which may be devoted to the dining-table, so that the remainder of the room may afford plenty of clear space for easy chairs and lounges. There should be a corner for the piano, shelves for books, cupboards and other places for putting things.

Besides the general living-room, another, but smaller, one is required where one can be quiet and write letters or have a confidential chat. This may be called a study or a boudoir or, as the Americans style it, a den. Thus our modern week-end cottage will have very much of the character of a mediæval manor-house, with its hall for the general life of the household and its solar for privacy.

A PAIR OF COTTAGES AT ASHTON.

Indeed, an enlarged entrance-hall, with fireplace and sufficient space and cosiness to serve as a sitting-room, is by no means a bad feature in a week-end cottage. But a mere enlargement of the corridor-hall, all passages and doors, will not serve the purpose of the sitting-room hall.

Another fairly satisfactory method of planning the day-rooms is to arrange them en suite, with wide openings or arches between them, so that they become practically a development of the one main living-room, to which the lesser rooms form alcoves, which can be screened off, when occasion requires, by curtains, folding or sliding doors.

The culinary and service departments of a week-end cottage would not greatly differ from that of an ordinary house, save that special care should be given to reduce to a minimum the expenditure of labour. Gas cooking apparatus should always be installed. Even where there is no supply from the mains of a company or local authority, gas cooking can still be employed by the use of a petrol air-gas plant. A hot-water heating apparatus with radiators is also a desirable adjunct to a holiday home, lessening the number of fires that have to be supplied, with their attendant cleaning.

It is not wise to attempt to do without means of warming living-rooms and bedrooms, as such an economy would seriously limit the use of the week-end cottage, and even in summer-time we occasionally get cold nights that make a fire or other heating apparatus rather a necessity than a luxury.

In selecting a site for a holiday home particular attention should be given to the possibilities of water supply and drainage, and the man who intends to build should consult his architect before he buys or rents his land, instead of after. The question of aspect and prospect also demands attention, for although a clever architect can be trusted to make the best of a bad situation, it is far more satisfactory to choose a good one, so that the pleasures of an enchanting view may be combined with the comfort and healthiness of a right aspect for the living-rooms and bedrooms. For the latter it is essential that they should receive sunshine at some portion of the day, and it is desirable that there should be a possibility of variation of aspect. Children's bedrooms, for example, should never face west, although this is quite a desirable aspect for some individuals. In connection with the questions of aspect and prospect comes that of the distribution of windows. Whilst it is desirable to have in a holiday home bright and cheerful interiors, with, where possible, cross lighting, caution is necessary to avoid the house being over-windowed, particularly in the bedrooms.

A holiday home ought certainly to be given a cottagey or farmhouse style of treatment, both internally and externally. The rooms should be comparatively low, which also makes for economy and allows greater area of floor space for the expenditure of any given sum of money. Wood beams or rafters exposed in the ceilings and simple panelling also help the desired effect in internal appearance. Externally, the wall and roof treatment should be regulated by the prevalent local materials; tile and thatch, brick and stone, plaster and half timber, all have their proper place and appear in harmony with their surrounding scenery when they conform to the genius loci and are not imported exotics. As examples of such suitable treatment we illustrate on these pages some characteristic architecture in the Northamptonshire village of Ashton, the rebuilding of which has just been completed by the Hon. N. Rothschild. The cottages are built in pairs around the village green and are fitted with baths, water closets, hot and cold water laid on, and ample space for garden and drying ground. The cottages are occupied by the employés on Mr. Rothschild's Ashton Wold estate at the low rent of thirteen-pence a week, and can therefore scarcely be considered a commercial proposition. Much can often be done by a judicious mingling of material as distinct from the simplicity of these Ashton examples.

PETROL AIR GAS.

EXPERIENCE is now beginning to make itself felt in the possibility of estimating the value of the many different systems and types of apparatus which have been evolved by the ingenuity of inventors or placed upon the market by the enterprise of men of business.

Amongst the various systems described by Professor C. A. M. Smith in the series of articles which appeared in *The Architect* last year was Cox's Air-gas plant. This we have recently had an opportunity of inspecting in actual work. The essential point of the system is that an exceedingly weak mixture, theoretically perfect for complete combustion, is produced by the plant, pro-

THE VILLAGE INN AT ASHTON.

pelled through the pipes, and supplied to the burners, the proportion being 1.4 of hydro-carbon vapour to 98.6 per cent. of air. The truth of this assertion, as far as we are concerned, rests upon the authority of Mr. Charles E. Cassal, F.I.C., public analyst for the City of Westminster, the Royal Borough of Kensington, the Metropolitan Borough of Battersea, and the County of Lincoln; and of Mr. J. Kear Colwell, F.I.C., public analyst for the Metropolitan Boroughs of Finsbury and Holborn, and the Borough of Bedford, Gas Examiner to the London County Council.

It is obvious that a plant which employs a weak mixture such as this must provide motive power for a larger body of air than one which propels a six per cent. or richer mixture. Now if this motive power is to be provided by a weight-driven plant, this means an expenditure of labour in winding up the weights which would be considerably greater in the case of the system using a weak mixture than in that of the richer. Therefore we are not surprised to find that the motive power in the Cox plant is supplied by a hot-air engine driven by the air gas made by the plant itself. Some of our readers may ask what drives the engine before the plant has made its first cubic foot of air gas. Well, at first the air-engine has to be worked by hand, just as a motor-car is started, except that the effort is not so great, though a little longer continued. As Professor Smith pointed out, a hot-air engine scores in that it at once provides a source of heat enabling low-grade or high-density spirits to be used. Thus Cox's plant can use spirit of .720 density, and Shell motor spirit is perfectly well suited for it. Of course some of the petrol, or more properly hydro-carbon spirit, is used to drive the engine; it is not all available for light, but it appears that the positive efficiency in candle-power obtained from the plant is very near the theoretical efficiency of the petrol used.

Then we may consider the relative advantages of a weak mixture and a rich mixture as regards safety. It seems to be fairly well established that a mixture of petrol vapour and air is explosive between the limits of two per cent. and five per cent. of petrol vapour. Hence safety is obtained by the use of either a richer or weaker mixture. The richer mixture may become explosive by the addition of air after escape, just as coal gas becomes dangerous, but in well-constructed plants there is not much risk. The weaker mixture can never become dangerous and hence the product of a Cox plant is absolutely safe and non-explosive.

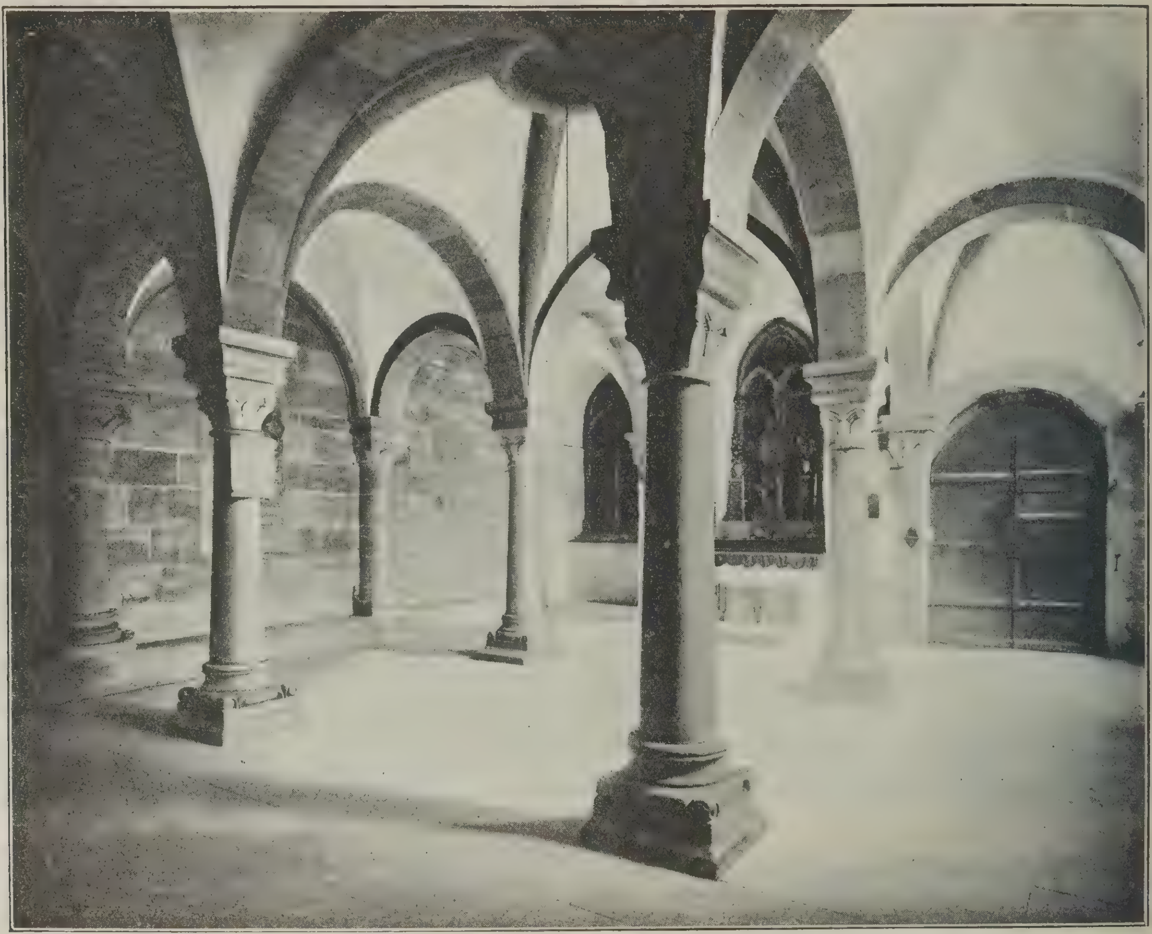
The theoretically perfect mixture supplied by this plant ensures complete combustion of the petrol without any demand upon the air of a room, and it has been proved that a light can be maintained in an apparently air-tight glass case.

As a mechanical apparatus the essential points of the Cox plant are the carburettor, which delivers a dry and perfect mixture of petrol gas and air, and the diaphragm valve which automatically adjusts the supply of petrol and the speed of the hot-air engine to the amount of work required, that is, in other words, to the number of lights that are burning.

The weakness and dryness of the mixture probably furnish the reason for one good point in the Cox system, the absence of condensation in the supply pipes, a fact which appears to have been abundantly proved by severe experiment.

Testimonials are not always of unimpeachable value, but Cox's Air-gas system seems to have stood the test of time, and users of the plant have, after trial, given orders for further installations, in several instances displacing coal gas. Following their experience at Lydd Camp in 1909, the War Office have found the system suitable for the needs of Fort George, Inverness, and have given orders for installations there in 1910, in January 1911, and in the present month.

All petrol air-gas systems of modern type produce light by the use of incandescent burners, the petrol itself being burnt to produce heat only by more or less perfect combustion. Petrol air gas, indeed, effects so considerable a saving on the cost of coal gas or electric current that in many cases, though not in all, the cost of scrapping coal-gas fittings and installing petrol air-gas plant is covered by the saving in a short time. Therefore they can be used for heating and cooking, and for the latter have a great advantage in cleanliness, in which respect they rival the use of electric current. A weak and theoretically perfect mixture such as that produced by Cox's plant is obviously in a particularly good position as regards its adaptability for heating and cooking purposes.



STRASSBURG CATHEDRAL.—CHAPEL OF ST. ANDREW.

STRASSBURG CATHEDRAL.

(*See Illustrations.*)

AMONG the great mediæval churches of Europe the most famous of the French cathedrals are generally, and perhaps deservedly, awarded the foremost place as masterpieces of Gothic architecture; but there are others which, perhaps owing to unfavourable circumstances, have not acquired the celebrity they deserve. And of such is the great cathedral of St. Mary at Strassburg, a building peculiarly rich both in architectural and historical interest, and, indeed, one of the most wonderful monuments of mediæval art now existing.

The present cathedral is the third, if not the fourth, that has occupied the site, its predecessors having replaced a Roman temple since the close of the fourth century. It is remarkable not only as an epitome of the progress of Romanesque and Gothic architecture, but also as distinguishing certain stages of their development by unique departures from contemporary types. In comparing its dimensions with those of other great cathedrals, it is at a great disadvantage in being devoid of a Gothic choir and transepts; but the proportions of the nave, as will appear later, are so ample that, had the church been completed in the Gothic style, it would doubtless have ranked among the greatest cathedrals of the Middle Ages. As it is, the extreme internal length of the church is 328 feet, and the breadth across transepts 182 feet. Its plan may be compared with a number of others drawn to the same scale, which are exhibited in the chapter-house at Westminster Abbey.

The present cathedral dates from 1176, when the earlier church upon whose foundations it stands was destroyed. The work of rebuilding it apparently began at the north transept and continued southwards until, when the walls of the south transept had reached about half their intended height, the style and proportions of the architecture, hitherto Romanesque, abruptly assumed the early Gothic character in which that part of the building was completed.

The plan of the east end is rather remarkable in the length and arrangement of the transepts, and in some other respects, but the choir and apse follow the German plan, and are raised, as in the church of St. Gereon, at Cologne, upon a large undercroft, whose eastern portion is all that remains of the previous cathedral, and probably dates from 1015. The crypt has groined vaulting without ribs, and contains some excellent early Romanesque capitals carved with an interlacing design of the Byzantine type.

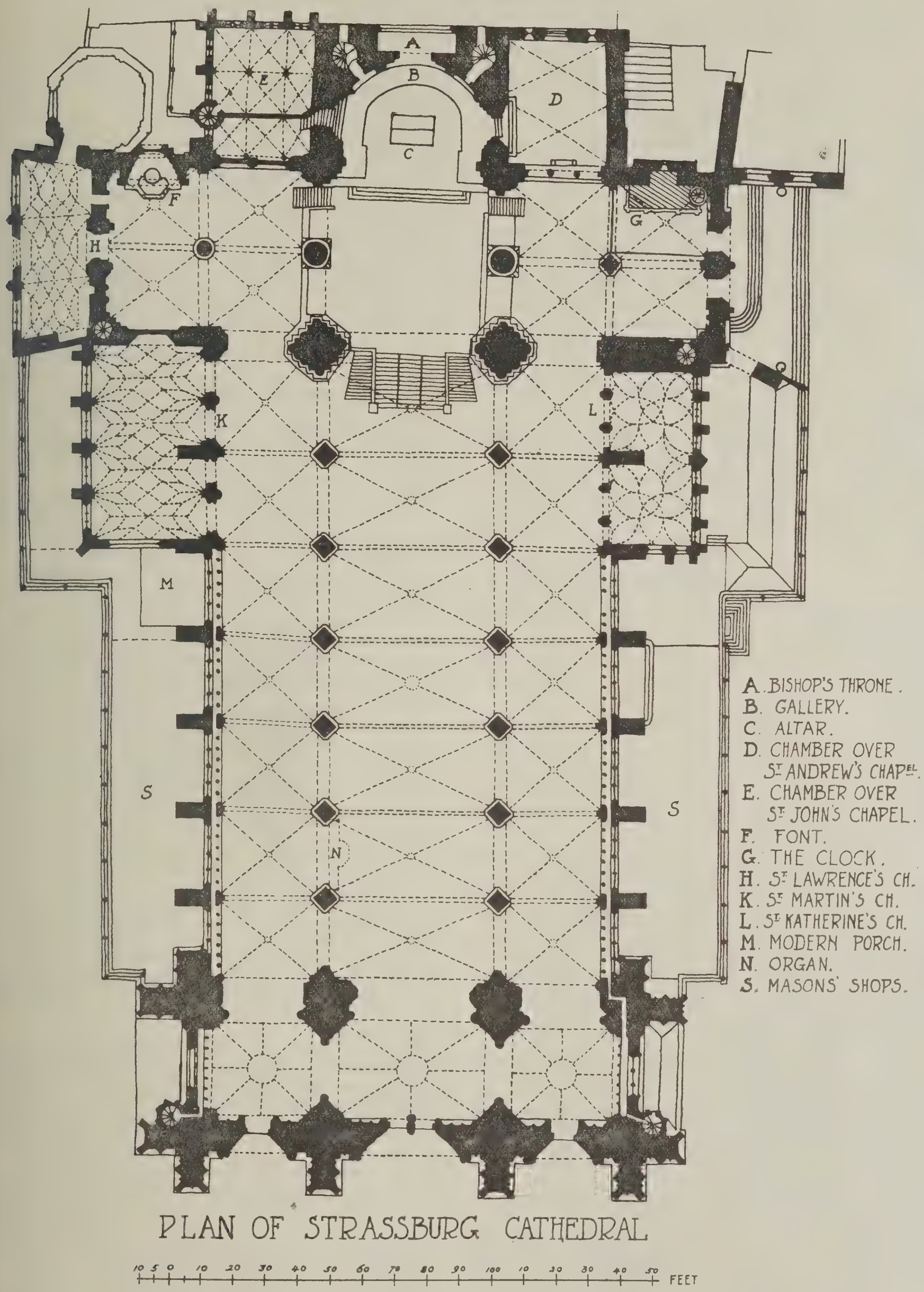
An advance in this style is seen in the chapel of St. Andrew on the south side of the crypt, where a few bays of the vaulting have groin ribs, and the capitals and bases of the pillars exhibit features found in the choir. Interesting examples of early but complete Gothic tracery are seen in the two windows in the east wall. In the chapel of St. John, on the north side of the crypt, the Romanesque vaulting and pillars have been replaced by pure early French work, the latter having the familiar crocket capitals. All the features of this chapel are reproduced in the chamber above, which serves as the chapter-house.

The vast proportions of the choir and transepts give them a singularly majestic and imposing effect. The choir, which is approximately 58 feet square, is raised 7 feet above the floor of the nave, and is covered by an octagonal brick dome reaching a height of 126 feet above the same level, but concealed externally by the modern lantern.

Looking from one transept towards the other, the huge cylindrical columns, 64 feet high and about 7 feet in diameter, together with the massive and spacious proportions and simple architecture, render this Romanesque interior extraordinarily impressive.

The north transept is vaulted in four highly domical quadripartite bays, each having an eye at its apex, which is 88 feet above the pavement. The central vaulting shaft is of very uncommon proportions, being a simple cylinder about 4½ feet in diameter and 64 feet high. Its base is a plain disc, and the capital is carved with primitive foliage.

The illustration of St. Lawrence's chapel shows portions of the two circular windows in the north wall of this transept, which contain an interesting prototype of tracery formed, like examples at Bourges, Peterborough, and elsewhere, of small pillars with capitals and bases, radiating from a central ring, and receiving the feet of sub-arches, which in this case, however, form a kind of cusping, having all the sinuosity, though not the spirit, of Flamboyant tracery. Such features, and the general excellence of the workmanship of this Romanesque building, prove that the



PLAN OF STRASSBURG CATHEDRAL

masons of the twelfth century had by this time attained considerable skill.

The south transept possesses a very good specimen of rich late Romanesque work in the double doorway shown in our illustration. The arch-mouldings are merely receding orders, alternately round and square, but the tympana of the arches and the deep lintels beneath them are filled with excellent and delicate sculpture in high relief, representing the death, burial, resurrection and coronation of the Virgin Mary. Two very good statues of somewhat later date stand upon early Gothic pedestals flanking the doorways, and represent Judaism defeated and Christianity triumphant; the figure of Solomon in the centre is modern.

The vaulting of the south transept, which reaches a height of 82 feet, is supported by a curious Gothic pillar formed of eight shafts attached to an octagonal core, and called the "Angel Column," from the circumstance that figures of saints and angels in three tiers replace portions of four of the shafts. Several of these statues, which are about life-size, are inferior compared with those of the south doorway, and injure, rather than enhance, the slender elegance of the column. They are, however, cleverly designed to subserve the architectural purpose without losing their individual and statuesque character.

It is somewhat remarkable that the Romanesque choir and transepts, vast and majestic as they are, have never given place to more extensive Gothic buildings, but the church was from the beginning a "secular" cathedral, and apparently possessing no relic or shrine of such sanctity as to attract many pilgrims, probably had not sufficient need of extension or improvement to warrant the expenditure involved, the building funds being raised largely by means of special efforts. When, however, these eastern portions were completed the Gothic style had already made its entry, and was fully established when the nave began to be built.

Of the date when this took place nothing more is known than can be gathered from the architecture: the only documentary evidence concerning the matter is that which records the completion of the nave in 1276. The name of the architect is likewise lost, but the design so strongly resembles that of St. Denis, in France, that it is thought to have been borrowed from that church (which was built about 1240), and possibly to have been the work of the same master. The scheme is generally uniform, but the detail of the two eastern and earliest bays is, curiously enough, richer and more elaborate than that of the others.

The great building epoch in France was at that time at its height, and Strassburg, from its geographical position, was very accessible to French influence. In some important points, however, this was without effect, the proportions of the nave being so uncommon that it will be of interest to compare them with others by means of the subjoined table, giving the leading dimensions, in feet, of several typical Gothic naves:—

		Length of Nave.	Width across Nave & Aisles.	Width of Nave.	Width of Aisle.	Height of Nave Vault.	Height of Aisle Vault.	No. of Bays.
Single aisles. No chapels included.	Strassburg	236	121	54	30	104	47	8
	Amiens	175	100	45	27	140	—	7½
	Westminster ...	240	75	33	14	101	49	12
	York	207	106	47	22	—	—	8
Double aisles. No chapels included.	Paris	183	120	42	37	109	37	10
	Cologne	210	146	42	48	147	62	8

(*Note.*—The space beneath the west towers or front is included in the nave, and in the cases of Paris and Cologne contributes two bays to the total length, which is measured to the piers at the crossing. In both these cases the aisles are double, and are, therefore, naturally wider than any others on the list. Most of the measurements have been obtained from small-scale plans, and may not be strictly accurate.)

The extraordinary width and length of this nave, and the fact of its subdivision into only three longitudinal and eight transverse divisions, sufficiently account for the unusually spacious effect and vastness of scale which it possesses. The French influence, so apparent in its architecture, is absent in these proportions, and arrived too early to give to the nave such a towering vault as, by the rule of Amiens and Beauvais, its proportions would have merited, and which exists in the neighbouring cathedral at Metz; though the great span of 54 feet would, perhaps, have prevented this from being attempted at any period.*

It is worthy of note that the apex of the vaulting coincides with that of an equilateral triangle based upon the transverse diameter of the church at the floor level, and this circumstance, whether due to accident or design, gives it a height rather below the normal in French cathedrals, but so much so in relation to its span as materially to aid the large proportions of the building in freeing it from the narrower and more confined aspect of a French interior.

The nave well exemplifies the full Gothic principle of construction, showing the least possible expanse of wall surface and a very scientific disposition and economy of material. Considering the great span and consequent weight of the vault, the buttresses seem remarkably unobtrusive, but here the architect has shown his skill in avoiding an error prevalent among his contemporaries, and instead of seeking to minimise the thrust of his vault by limiting its span, saw in the unusual conditions a factor which actually facilitated the accomplishment of his purpose; for the larger the vault the lower is the line of its thrust, and the shorter the buttresses required to resist it; while the shorter the buttress the less massive need it be. In this way, no doubt, it happens that the buttresses at Strassburg, which support a nave vault of 54 feet and aisle vaults of 30 feet span, are no stouter and much shorter than those of Westminster Abbey, where the width of the nave is but 33 feet and of the aisles 14 feet, while the Strassburg vault is a little the higher of the two. This effect is also partly due to the fact that, owing to the great width of the aisles, the buttresses stand twice as far from the nave as at Westminster, but is slightly discounted by the more obtuse pitch of the Strassburg vault. The same tenuity prevails throughout the nave; the piers are only 6 feet square, though placed on the average 28 feet apart, while the flying buttresses are not more than 15 inches thick.

The great glory of the nave is in its unique display of stained glass, which, though dating from various periods and much restored, is mostly ancient, and of the richest and most harmonious colouring. The clerestory windows, 20 feet wide and nearly 40 feet in height, reach from pier to pier and from the triforium to the vaulting, and are repeated, though with less height, in the aisles; while the back of the triforium, which is a mere passage in the wall, is pierced and glazed, the whole expanse of painted glass forming a truly wonderful spectacle. The slender tracery is of the usual type of the period, and is simply but boldly moulded. That of the triforium is of a more primitive type, and is merely chamfered, while the triforium windows are formed of "plate tracery." The French hand is clearly visible in all these forms, but, excepting in two crocket capitals, it does not appear in the ornamental detail of the piers and vaulting shafts, most of which is of a vigorous and vegetable form, recalling no French work of the period.

The most remarkable fixtures in the cathedral are the celebrated astronomical clock, the organ case, the pulpit, and the font, of which the two last are fine specimens of the richest fifteenth century work.

The clock, which stands in the south transept, is one of the most elaborate of its kind, and is perfectly modern; but it replaces a series of celebrated timepieces, the first of which was made in 1354, and is housed within the case of another, dating from 1574. The case is a ponderous piece of architecture, and is chiefly remarkable in being partly of Gothic and partly of Renaissance design. A small open spiral staircase affords access to its upper parts, and is a fine piece of mason's work.

Hanging on the north wall of the nave, where it takes the place of the second clerestory window, and partly shown in the view of the interior, is one of the few Gothic organ-cases, and the best example of the pendent type, still existing. This unique case, which dates from 1489, is of immense size, nearly reaching the apex of the vaulting, and is richly ornamented with carving and tracery, and brilliantly decorated in polychrome. A full account of the organ was published in the *Musical Times* of September 1910.

The cathedral contains much exquisite workmanship of late style, which well repays a careful inspection, and of which a specimen is seen in the illustration of St. Lawrence's Chapel, built in 1495-1505; a work in which all the eccentricities which characterise German architecture of that period are combined with the consummate workmanship and marvellous intricacy of design which no less belong to the style, and to which, unfortunately, constructive truth was largely sacrificed.

Built of red sandstone from the Vosges, the exterior of the cathedral has a picturesque aspect, but it lacks the chief characteristics of a French cathedral, and owes its imposing appearance chiefly to the mighty west front and tower which form its distinguishing feature, and dominate the landscape for miles around the town. It is with this part of the church that the name of Erwin von Steinbach, incorrectly designated and immortalised by Longfellow as "architect of the cathedral," is associated. He was the first "*Werkmeister*," or "Master of the Works," of whom there is any record, and was probably the author of a design for the west front which is still preserved among other drawings made by his successors; but, although the lower part of the façade was in the main built to this design, Erwin himself only carried out half of it between the time of his appointment in 1277 and of his death in 1318, after which variations were made by his successors, who in 1365 had raised the twin towers to the height of the present platform (217 feet). The upper or octagon tower was begun in 1399, the completion of the spire in 1439 concluding the whole work. No project for completing the south tower in a similar manner appears to have been entertained at any time.

The west front is of extraordinary interest, not only as a work of astonishing elaboration and delicacy, but also as an extreme development of the Gothic principle of piercing spandrels introduced half a century earlier in the windows of the nave, constituting thereby a departure from the course of French Gothic art, and giving the clearest possible expression to the logical and elaborative character of the German mind.

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* In Spain, however, Seville Cathedral has a nave vault of 55 feet span, and 130 feet high

That the architect had been trained in France seems almost certain, but the presence of the three typically French sculptured doorways must have been due to his deliberate choice.

Beyond these he took a new path, and drew over the massive masonry, as it were, a veil of mullions and tracery of the most refined design and wire-drawn slenderness, standing out sufficiently to allow several galleries to pass behind it, and supplemented by a profusion of pinnacles and canopies rising from and adjacent to the gables over the porches, in various planes. The canopies formerly contained statues, most of which were thrown down during the French Revolution.

The somewhat exaggerated delicacy of the composition was not achieved without some sacrifice of stability, and the tall and slender canopies and pinnacles resist the elements chiefly by the help of metal supports.

The great rose window, 40 feet in diameter, strongly resembles in design that of Westminster Abbey, which is second to it in dimensions. It has a unique feature in the outer circle of delicate crested tracery, 46 feet in diameter, to which it forms the background. The belfry over this window, which does not harmonise in style with the surrounding architecture, did not form part of any design for the west front, nor is the date or purpose of its erection accurately known. It is thought, however, to have been added between 1364 and 1399, possibly in order to buttress the north tower, upon which, at the latter date, the upper structure began to rise.

This tower, which is not part of Erwin's design, consists of eight piers forming the angles of an octagon and surrounded by four slender stair turrets, no two of which are alike, and which, though 140 feet high, are nowhere more than 9 feet in external diameter, and are unconnected with the octagon tower save by footways at the top. The detail and workmanship are very elaborate; the north-east turret contains two distinct staircases, and the octagon tower has a complex stellar vault hidden externally by the spire.

This marvellous structure consists essentially of eight stone rafters springing from the angles of the octagon, and carrying at their juncture an octagonal shaft encircled by a rich gallery, and surmounted by a lantern and cross reaching a height of 466 feet. Upon the backs of the rafters are built six tiers of intersecting hexagonal canopies formed of hexagonal shafts, two of which are common to each pair of canopies, and containing eight staircases, which wind upwards from one into the other. Viollet-le-Duc, in his "Dictionnaire," suggests that the canopies were designed to receive small open spires, and his sketch of the arrangement also shows a statue upon the top of each shaft; but this theory rests solely upon conjecture, and cannot be inferred from any record or from the original drawing of the spire. The addition of over fifty spirelets and more than 200 statues would, indeed, have been a formidable undertaking.

In originality, daring, and intricacy this work is unique in the whole range of Gothic architecture, but the astonishing workmanship contributes little to its general effect at such an altitude, and is almost lost upon the casual spectator. As a monument to the skill of the builders of those days, and as an indication of the course which Gothic architecture was at that time running among the peoples of the German race, this work is, however, of the highest significance and value.

In this short survey of Strassburg Cathedral, much that would have been of interest, both of illustration and of description, has necessarily been omitted, but enough, perhaps, has been given to substantiate the impression received when for the first time the edifice meets the view, the towering front turned to bronze by the setting sun, that of the great monuments of the Gothic era, this, indeed, is among the greatest; and, easily accessible as it is, will amply reward the architectural pilgrim for the trouble of turning his steps towards the ancient and romantic city of Strassburg.

(The author is indebted to Herr J. Knauth, architect to the cathedral, for much valuable information and help in studying the building; to Professor G. Dehio, of Strassburg University, for the plan; and to Herr E. Hartmann, of Strassburg, for kind permission to reproduce his photographs. The historical information is taken from works by Professor G. Dehio, F. X. Kraus, and others.)

THE ARCHITECTURAL ASSOCIATION.

THE opening meeting of the session 1911-12 of the School of Architecture was held on Monday evening last at Tufton Street, Westminster, Mr. Gerald C. Horsley, president, in the chair. Professor Beresford Pite gave the following address on

Architectural Education.

The history of architecture, he said, is that of building construction, the means being involved in the consideration of the end attained. The two elements of architecture, the purport of the building, which involves the civilisation of the race, and the æsthetic ideal and traditions of the builders both finding embodied expression in construction. A genuine architecture has neither of these two elements singly, as it cannot be without purpose or beauty; but it involves their combination under the conditions of the science of building, and, despite the tendency of books of modern architectural history to concentrate attention on religious, civic, or domestic habit, or upon a commerce in traditional architectural forms, the building construction of man in different countries and ages is the field of the true study of architectural history.

The elements of architecture are not really capable of a practical dissociation, though possibly of separate analysis. It would be difficult in any historical review of buildings to eliminate architectural from non-architectural examples, and this is the problem of separating the study of architecture from that of construction. In different eras, and with races in varying measure, the æsthetic or the constructive faculty has predominated. The great era of Grecian art stands for the former, as that of Roman ascendancy does for the latter; but to some extent both are always present, being interdependent, and they act and react as stimulants to the production of fresh architectural developments.

Many instances might be cited to illustrate the necessity of allowing that good building and good art are the same, a quality properly common to both, admirable construction having beauty in building as well as in other workmanships. Construction as an art in entablatures, domes, vaultings, arcades, roofs, staircases, and joinery offers abundant examples which do not permit the disintegration of artistic effect from constructive skill; both elements are practically in operation, and we can only describe the result as beautiful building construction.

Architecture as a constructive art offers a healthy sphere for a new enthusiasm. Ancient buildings will awaken it in those to whom the glamour of antiquity is golden, while others, to whom the practical aspects of modern life appeal more strongly, will find an incentive in the constant development of new requirements of plan and the adjustment by invention and experiment of materials and workmanship.

We shall perceive in the practical application of a definition of architectural beauty based upon beautiful construction that ancient and modern builders alike, when working with devotion, produced results which are satisfying. We shall then enter into a sympathetic union of aspiration (which perhaps may be a new experience), in finding that buildings are the expression of earnest life, and in the revelation of a fresh harmony of thought we shall discover one of the secrets of the mystery of art.

Intelligent antiquarianism and a sympathetic practicality of mind are each valuable as a standpoint for the architectural student, and both are necessary to a helpful consideration of the many branches of study included in building construction. The pursuit of the most prosaic and apparently unattractive of the building crafts is not successfully carried to the point at which the student becomes first a master and then a creator, by merely picking up the latest threads of practice, contented to learn just how the thing is now done in order only to employ a process to attain a result. Building art is not such tame science as this. In every work which issues into real architecture there is scope for earnest investigation of the motives of derivation, and in the pursuit of such studies lie the incentives to further new development or design.

It will be evident, if material and workmanship may be assumed in any view of the art of architecture and that form only is to be considered, that the scenic make-up in stucco of an architectural order or style is a result equivalent to the original construction as an expression of art. The study of form and proportion in an academic classic method, or by the so-called historic periods, which ignore the constructive craftsmanship of building art, is delusive and harmful. Transliterated forms in any rearrangement "freshly designed" may be, are as empty and vague of meaning as the decorative inscriptions composed of disjointed sentences from the Koran employed in Mahommedan building. Unhappily, a knowledge of the forms of architecture and a knowledge of modern building construction, each separately studied, are to a great extent the staple of present-day studies, examination, and practice, and to this imperfect method of education much of the superficiality of design and construction in modern architecture may be justly imputed.

The sense that the architect of a particular building was emphatically the master of his work, rather than the unwilling slave of intractable materials and awkward conditions is so rarely conveyed to the mind by a modern erection other than a simple work of engineering, that the conclusion is enforced that many architects have no genuine enjoyment in their handling of the building crafts, and are unable from want of properly-directed study to express any appreciation of the means they employ to attain their ends in their works.

To the architectural student the remedy for this weakness does not lie in devotion to a new style of architecture, but in a new style of building; not in a fresh revulsion from licence in form to austerity, or in a craze for individualistic ornament. "In quietness and confidence shall be your strength—but ye would not." The remedy is a complete recognition of the artistic value of thorough knowledge and direct purpose in building construction. Genuine interest will be found in the quality of each craft or trade, and the unaffected employment of each for its native or innate beauty, and interest will replace superficiality, and a sense of texture in material and suitability in form will follow. Brickwork can be beautiful both as material and workmanship, stonework in adaptability and freedom of treatment, slating in pattern and quality, carpentry framings and joinery in direct expression of construction.

Full acquaintance with the nature and uses of the materials for which he has to prepare designs, or more exactly in which he designs, is of fundamental importance to an architect. A slight general acquaintance will not be sufficient to ensure the technical sympathy which is recognisable so seldom, but is of such value. A certain knowledge, that does not mistake the quality and peculiar beauty of each material is needed, so that the problem of the design may ally itself directly with the medium of its construction. This harmony, having very much to do with architectural beauty, sound and ingenious construction, will be quite readily seen to have intimate connexion with a right and sympathetic use of material. Constructive skill in unsuitable and unlovely material is as inharmonious as beautiful form badly constructed in a fine material. The art which employs materials successfully in building is as real as that which constructs with permanence and economy. Without construction, building is impossible; but unless exercised in suitable materials, with a proper sense of their nature and serviceableness, fine architecture is equally unattainable.

(To be concluded.)

SUCTION-GAS ENGINES AND PRODUCERS.

A COMMUNICATION presented to the British Association at the Portsmouth meeting, 1911. By W. A. Tookey.

NOTWITHSTANDING that during the last ten years or so a very large number of suction-gas plants have been installed in all quarters of the globe, with satisfaction to purchasers, as is evidenced by the increasing demand for these simple and economical apparatus, it is a fact that figures recording the actual performances with regard to fuel consumption, cost of maintenance, cost of repair, &c., are difficult to obtain. Yet in order properly to appreciate the claims advanced by the makers of gas engines and gas producers it is very necessary that such records should be available, so that comparisons may be made with competing types of motive-power generators, and more particularly those which, according to test figures, would appear to compete very keenly, if not, indeed, to surpass, gas power-plants in reliable and economical working.

The author has collected from his own tests and those available from various sources, representative performances of suction-gas plants of various sizes when under test, not only when the power can be determined by means of some form of brake dynamometer, but when generating electric current—so taking into account the efficiency of the combined gas-electric set—and also when raising water under different "heads," indicating the comparison between fuel consumed and foot-pounds of work performed in such circumstances.

However, inasmuch as "test" figures are usually obtained under what must be admitted to be abnormal conditions—no account being taken of standby losses, wastage of coal in charging, in removal of ashes, &c., the engine and producer being worked at a constant and regular output for but a limited number of hours—further figures were presented which enable the average performances of suction-gas plants of moderate power to be noted. These figures have been compiled from the statements of factory owners in Great Britain and in European countries. They take into account the variations of consumption due to the different grades of fuel used; they reflect the influence of variations of output, of load fluctuation, of length of standby periods, as well as the effect of the variation in the human element in maintaining or otherwise those conditions which make for the best gas-making and lowest consumption of fuel per unit of power delivered.

Mention was made of the recorded performances of suction-gas engines and plants with regard to non-stop runs, as in information of this character it is possible to realise how reliable are these installations and what little attention is really needed, provided always that the engine is properly correlated to the producer and the latter to the quality of the fuel and rate of combustion. Figures representing the consumption of lubricating oil were also given, as being of special interest in view of the criticisms that have sometimes been made in this respect. The experiences of users with regard to the cost of maintenance and repairs were also referred to.

The question of capital outlay was next considered for engines and producers fixed complete upon foundations, with piping and all accessories. No figures were quoted for buildings or space occupied, as, after all, these items, though of importance, vary so much in value that no useful purpose would be served by any assumption.

Having thus dealt with the more important considerations that come under survey in the application of gas power, some attention was given to the comparative costs of operation of liquid-fuel engines of the Diesel type, which, although more efficient as regards utilisation of heat units available in the fuel for conversion to power, yet require several conditions to be fulfilled before the higher economy becomes apparent in the pocket of the manufacturer. Similarly, some points were suggested with regard to the relative performances of steam engines of the high-pressure, superheated, compound, condensing, semi-stationary type, to direct attention to the fact that, although according to test results it would appear that suction-gas plants are threatened by a competitor which offers equal economy of operation, there are claims of a negative kind which must incline the balance of advantages in the favour of the gas power-plant, at all events for moderate powers.

ILLUSTRATIONS.

STRASSBURG CATHEDRAL.—DETAIL OF WEST FRONT.

THIS photograph shows the double plane or veil of tracery which is characteristic of German architecture of the date of the west front of Strassburg, 1276 to 1365. The statues in the jambs of the doorways are ancient, but the carvings in the tympana and arch-rings are modern. The statues of the twelve apostles above the rose window are modern reproductions of the original design.

STRASSBURG CATHEDRAL.—WEST FRONT.

OUR general view of the west front includes the completed tower and spire, which was in progress from 1399 to 1439. The view also shows some typical Strassburg roofs.

STRASSBURG CATHEDRAL.—PORCH OF S. LAURENCE'S CHAPEL.

THE date of this work is 1495 to 1505, which is characterised in German architecture by exuberance of detail and extraordinary skill in craftsmanship. The scene in high relief under the canopy represents the martyrdom of S. Laurence.

STRASSBURG CATHEDRAL.—VIEW OF SOUTH-EAST ANGLE.

THIS shows the change of style in the south transept, the thirteenth century work in nave and aisle, the fourteenth century S. Katherine's Chapel (1331 to 1349) and the modern lantern.

STRASSBURG CATHEDRAL.—INTERIOR OF NAVE.

THE choir and apse seen in this view date from the end of the twelfth century, the nave was finished in 1275, the date of the organ case is 1489, and that of the pulpit 1487. Gobelins tapestry, which is occasionally displayed, is shown in the photograph under the nave arcade.

The photographs from which our illustrations are taken are by E. Hartmann, of Strassburg.

[From *The Architecture of the Renaissance in France.*

FONTAINEBLEAU: PORTE DAUPHINE OR BAPTISTERE DE LOUIS XIII. (C. 1600).

HE ARCHITECTURE OF THE RENAISSANCE IN FRANCE.

LTHOUGH it is true that throughout the whole
period during which the architecture of the Renais-
ice was the prevalent method of design in France
lian influence and precedent were of ever-renewed im-
tance, there is throughout a distinctive difference
ween the work of the two countries sufficient to justify
term French Renaissance architecture. It is there-
e a matter of some surprise that up to the present
ere has not appeared any work in the English language
aling exclusively and fully with the Renaissance archi-
ture of France as a whole. Partly, no doubt, this has
en due to the immensity of the field, partly to the
stence of excellent monographs dealing with some por-
n of the subject or some selected group of buildings.
e omission has, however, now been rectified by the
plication of Mr. Ward's new book,* in which are
hered together the fruits of indefatigable research and
e selection of examples.

As the title page informs us, Mr. Ward's work is a
tory, and he therefore deals with the subject of the
ench Renaissance historically. In so doing he recog-
es various phases in the development of French Renais-
ice architecture and classifies these as "styles" asso-
ted with the names of the several monarchs whose
gns happened to coincide with the manifestation or
mination of the various tendencies connected with
h particular phase of development. Thus we have the
le of Louis XII., in which there was an attempted fusion between Lombard Renaissance and Flamboyant Gothic; the style of Francis I., in which the fusion between the native style and Lombard Renaissance was completed; the style of Henry II., wherein is shown the influence of Roman Renaissance; the styles of Henry IV. and Louis XIII., which Mr. Ward considers to be marked by utilitarian architecture and rival tendencies of Netherlands-Barocco and Roman classicism; the style of Louis XIV., showing Barocco-Palladian compromise and "The Grand Manner"; the style of Louis XV., characterised by Rococo-Palladian compromise; the style of Louis XVI., which saw a puristic reaction and the beginnings of archæological tendency; and finally the style of the Empire, with its dominant archæological classicism.

We are inclined to think that Mr. Ward's epitome of the tendencies of the various styles is open to criticism. For example, we cannot agree with him in his ascription of the influence of Netherlands-Barocco on the styles of Henry IV. and Louis XIII., but we find sufficient evidence in such work as that of Il Rosso at Fontainebleau for the Italian origin of the characteristic detail of this period. Even in the style of Henry II. there are indications of the influence of the decadence which had commenced in Italian Renaissance, an influence to which Mr. Ward himself alludes.

In dealing with each successive style the author treats of the political and social activities of the time, the relative influence of the foreign and native artists employed, the principal buildings showing work of the period under review, both secular and ecclesiastical, and the characteristic treatment of the various elements, features and details of the buildings of the time. We are struck with the cautious manner in which Mr. Ward deals with the authorship of the design of various buildings, though it is evident that he has devoted much time to the research of documentary evidence wherever it has

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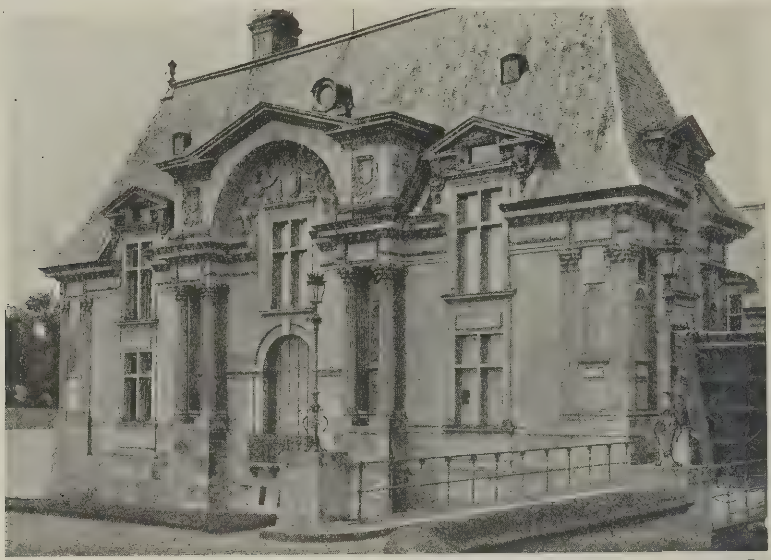
* *The Architecture of the Renaissance in France.* A History of
Evolution of the Arts of Building, Decoration and Garden
ign under Classical influence from 1495 to 1830. By W. H.
rd, M.A., architect, Associate of the Royal Institute of British
hitects. Author of "French Châteaux and Gardens in Six-
nth Century." In two volumes. (London: B. T. Batsford.
net.)



[From *The Architecture of the Renaissance in France.*

CHANTILLY: "THE CHATELET" BY JEAN BULLANT.—ENTRANCE FRONT.

been available. His attitude may be gathered from the passage "Systematic research is now putting the facts in clearer light, and if the extent of each man's work is still uncertain, it can at least be determined what it is possible he may have done."

As a fruit of Mr. Ward's research we have brought before us some interesting episodes in the architectural life of France during the Renaissance period. Thus we are shown the competition designs for the east front of the Louvre by Le Mercier, J. Marot and Bernini, as well as Perrault's original scheme. We see also the south front of the Louvre as completed by Le Vau before its alteration by Perrault.

It is, indeed, a feature of Mr. Ward's two volumes that whilst they are profusely illustrated by excellent photographic views of existing buildings, in whole or in detail, we have reproductions of original drawings and engravings of buildings that have been demolished or altered, and also designs that have not been executed, but which are of high value as illustrations of the trend of thought in architectural design, and sometimes perhaps of what architects would have wished to do if they had had the opportunity.

Thus we have in these two volumes a clear and comprehensive account of the architecture of the Renaissance in France as a whole, scholarly and complete, admirably and fully illustrated.

By the courtesy of the publisher we are able to reproduce some of the illustrations in Mr. Ward's book.

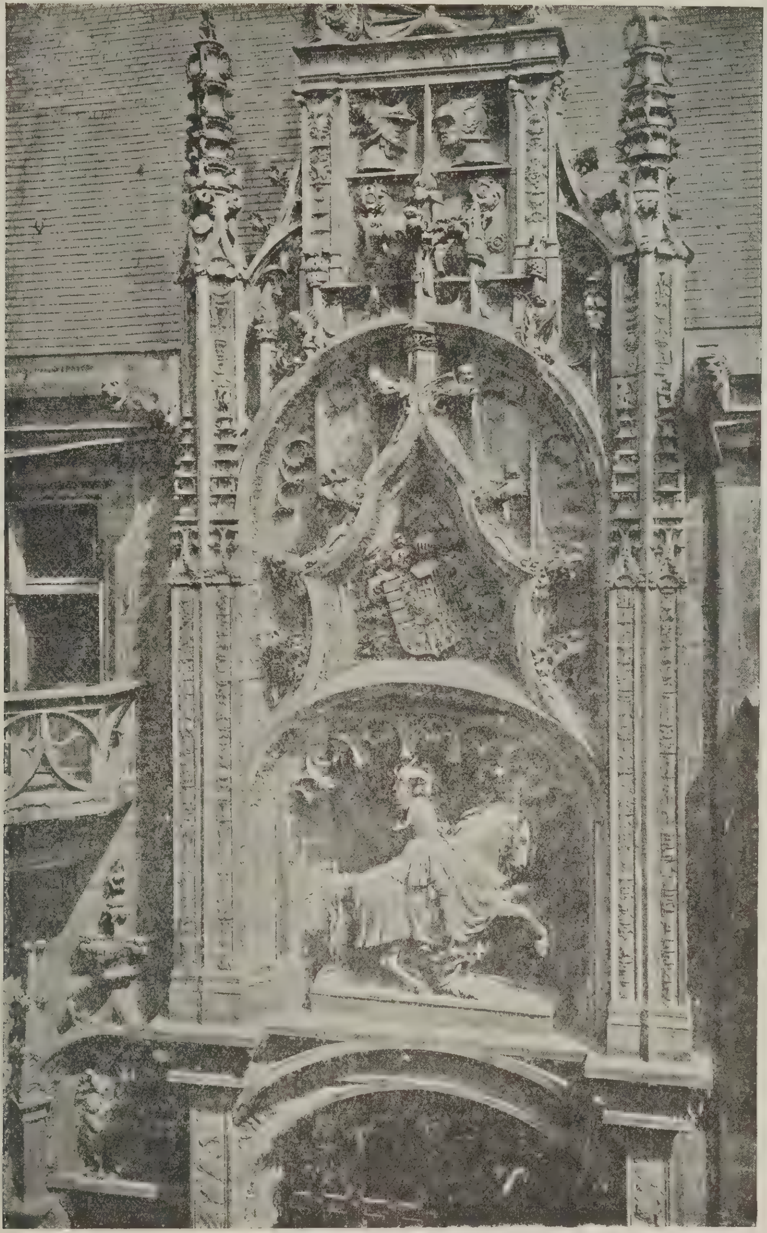
NOTES AND COMMENTS.

We are pleased to learn that a lectureship in civic design and town-planning has been established at the Birmingham University. The cost will be defrayed by the Bournville Village Trust, which was founded by Mr. George Cadbury to encourage schemes of betterment and improved housing generally. Mr. Raymond Unwin, F.R.I.B.A., has accepted the lectureship for the first year, and will begin his course during the present session. The lectures to be given at the University are at first to be associated with the Department of Civil Engineering, wherein are students training for civic and municipal service; but it is hoped that students in other faculties, especially those working for diplomas in Social Study, as well as persons interested in architecture and in civic improvement generally, will take advantage of them. Mr. Raymond Unwin and Professor Adshead, of Liverpool University, represent two distinct schools of thought in town-planning, and therefore it is very satisfactory that the choice of a lecturer for Birmingham University should fall upon Mr. Unwin, who has shown that he is well equipped
with a knowledge of wide extent in what has been d
in town-planning, even if his personal predilections
opposed to those of his colleague at Liverpool.

It is a pity that there are not more public spirited l
associations interested keenly and watchfully in the
servation of our ancient monuments like the Trustee
the Bath Municipal Charities, who undertake to rec
and wisely expend money entrusted to them. At
last monthly meeting of the Trustees it was reported
the Master had received the sum of £40 10*s*. to be
pended upon the restoration of artistic features of bu
ings. £20 of this sum had been specially allocated
the restoration of the doorway of Beau Nash's ho
The remainder was for the restoration of Bishop Butl
house.

Electricity is a good servant but a bad master, an
cannot be too widely known that installations of ele
lighting require periodical inspection as well as car
and conscientious workmanship in order to ensur
reasonable degree of safety. Sutton Hall, Thirsk, wl
contains some magnificent specimens of antique furni
and a large collection of Morland prints, probably
finest in the North of England, narrowly escape
destructive fire last week from the fusing of electric l
wires in the dining room, which is panelled with wo

Mr. S. E. Burgess, the Borough Engineer and
veyor for Middlesbrough, has submitted to the Midd
brough Streets Committee the draft of a town-plan
scheme for the borough. In this scheme the area t
laid out was 810 acres, or 1¼ square miles, and
divided into the following districts:—Longlands, B
Vue, Grove Hill, Parkside, North Acklam, and S
Acklam. From Acklam Road to Marton Road he
gested a new 60 feet road in three sections to be na
the Mill Walk, Tollesby Road, and South Bar. This
would form the Boulevard or Ring Road. Along
course of Marton Beck he suggested that the land sh
be laid out for plantations and public walks, and par
with the plantations and Marton Beck roads shoul
made. With regard to building sites, no back streets
proposed. The number of houses to be erected to
acre was suggested at eight or less for the better c
houses, and not to exceed eighteen or twenty for the o
kinds of dwelling-houses. Open spaces were to be
at various places, particularly on the main roads.
residential roads were to be laid out in the form
crescents and rectangles to suit the conditions of
land.



[From *The Architecture of the Renaissance in France.*

ENTRANCE OF DUCAL CASTLE, NANCY (1501-12).

Despite a certain amount of opposition the Corporation f Glasgow has wisely adopted the following resolution :— That it be remitted to a special committee to consider nd report on the necessity and expediency of the Corpora- on, in view of the provisions of the Housing, Town- 'lanning, &c., Act, acquiring the available ground on ach side of all the main roads leading into the city for uch distances from the boundaries of the city as may be etermined, with the view of enabling the Corporation to 'iden such roads and carry out the spirit of the said ct.'' The mover of the resolution, in making his pro- osition, pointed out that if the motion had been passed even or eight years ago the Corporation would have had ll the available ground leading into the city at a very uch cheaper price than they could get it to-day. Before ne cars went beyond the outskirts of the city ground was eing feued at £12 per acre, but whenever the cars went ut the cost rose £60, £70, and £80 per acre, and even igher in some cases. What he suggested would ulti- ately have to be done by the city. It had been done n Berlin, where they had received more in profit than ne ground originally cost the community. Foresight is ne essence of success in town-planning and the wider ne view taken by local authorities to-day the greater will e the benefits obtained in the future.

Sir James Crichton-Browne, in an address at the opening of the Tuberculosis Exhibition at Glasgow, expressed the view that tuberculosis was really with them a house disease, and it was by amending the housing of our people that they might best combat it. It was fresh air in the surroundings that was the pressing necessity in relation to tuberculosis. Commercially in Great Britain we were the consistent advocates of the open door, but there seemed to be still a national prejudice against the open window. Warmth before oxygen had been the motto, and there was still a widespread ignorance of the virtues of ventilation and of the invigorating effects of cool, dry air, even when charged with a larger percentage of carbonic acid than had hitherto been thought desirable. The windows and the chimney were the ordinary means of ventilation, but there are many of the older houses in Scotland in which the sashes of the windows were unhung, and were therefore difficult to open, and many containing rooms without a fireplace. In the interest of the abolition of tuberculosis all corporations should henceforth exercise the powers they possessed in approving the plans of new houses to disallow rooms without a fireplace or ventilating shaft; and one of the beneficial results of this exhibition would be, it was to be hoped, to rouse the people to make adequate use of such means of ventilation as they commanded.

[From *The Architecture of the Renaissance in France*.

ROUEN: FONTAINE DE LA GROSSE HORLOGE.

The Incorporated Church Building Society has collected and issued in pamphlet form some warning notes on cheap churches which should be in the hands of every promoter of church building. In this is pointed out clearly the falsity of the view that it is possible to build a "cheap" church which shall be worthy or sufficient for its purpose.

A daring scheme is proposed for Hove in the shape of a pier 1,300 feet long with a large building at the seaward end to contain a theatre, a kursaal, and a hotel, with bedroom accommodation for 464 visitors. If this is carried out as suggested there will be a fine opportunity for enjoying sea breezes, but south-westerly gales raise a heavy sea at Hove and nervous persons will be likely to suffer considerable apprehension from the inevitable vibration, to say nothing of the noise of breaking waves.

THE VICTORIA AND ALBERT MUSEUM.*

THE opening of the new buildings marks a new era in the development of the Museum; in order to realise what is the precise significance of the changed conditions it will be well briefly to review the past history of the institution.

The Victoria and Albert Museum owes its origin to the Museum of Ornamental Art established at Marlborough House in 1852. This comprised a series of casts of ornamental art of all periods, specimens of manufactures, &c., which had been purchased since 1837 and stored in Somerset House, and a selection of objects purchased in 1851 from the Great Exhibition of that year, together with loans from Her Majesty Queen Victoria and other contributors.

HISTORY OF THE BUILDINGS.

In 1857 the Marlborough House institution, together with the Department of Science and Art, was transferred to South Kensington, and from this time became known as the South Kensington Museum.

As time went on the primary purpose of the Museum—the encouragement of design and ornamental art—became somewhat obscured, partly from the close association with science and the more commercial side of manufacture; and partly from the gradual extension of scope which had taken place in the acquisition of objects.

Between the years 1865 and 1884 various portions of the collection other than those relating to art were gradually removed, some to Bethnal Green and some to the galleries on the west side of Exhibition Road, until in 1887 the art collections were left in sole occupation of the buildings on the east of Exhibition Road. In spite, however, of the relief thus afforded, the congestion caused by the insuffic ency of exhibition room presented an ever-increasing dif culty.

In 1890, after prolonged consideration, a scheme for ne and enlarged premises for the Art Museum was complete Various architects were asked to submit plans for the pr posed new buildings, and in 1891 Mr. (now Sir) Asto Webb's designs were selected.

It was not, however, found possible to proceed with th scheme until 1898, by which time a modification of t original plans had become necessary in consequence of t decision of the Government to transfer to Whitehall t administrative staff of the Science and Art Departmen offices for which, at South Kensington, had formed a co siderable part in the original scheme. The modified pla for the new buildings for the art collections were consider and settled by a committee in consultation with Sir Ast Webb, and upon May 17, 1899, the foundation stone was la by Queen Victoria of the institution which, by Her Majesty directions, was in future to be styled "The Victoria a Albert Museum." In January 1909 the new galleries we completed. The transfer of the collections began at onc and sufficient advance was made with the rearrangement admit of the building being formally opened by Ki Edward VII. on June 26.

COMPARISON WITH SIMILAR MUSEUMS.

The Victoria and Albert Museum, as it now stands, in point of size, the largest existing institution of its ki in Europe or America. Some idea of the actual spa covered may be gathered from the fact that in the n building alone the galleries have a total length of just o mile, beside the top-lighted courts, which cover nearly acres. With the exception possibly of the Louvre no oth museum approaches these dimensions. Moreover, in a comparison of this and Continental museums it must a be borne in mind that there is hardly any other muse which aims at precisely the same scope or function as th

The primary scope of the Museum, as has be already stated, was that of providing instruction in desi and ornamental art, of stimulating and improving "su manufactures and crafts as require and admit of decorati design." Broadly speaking, this purpose has been kept view throughout, but in some directions, partly in con quence of a certain vagueness in the original definition purpose, and partly from a fear of losing important objec the limits originally indicated have become more extende

On the other hand, the larger museums on the Contine and in America are, for the most part, general museums art, intended for the enlightenment of the public; they affo opportunities for the study of art and its history, but a not, as a rule, designed to meet the special requirements students of industrial and decorative art. Thus, the Louv in some degree combines the functions of the Briti Museum, the National Gallery, and this Museum; t Kaiser-Friedrich Museum at Berlin has the collection pictures combined with a collection illustrating the a of the Renaissance. Indeed, practically the only Contine tal museum of importance covering the same ground as th does is the Austrian Museum for Art and Industry Vienna. This museum, originally erected in 1868 to conta collections which had been founded on the plan of the Sou Kensington Museum, and since greatly enlarged, prese on a smaller scale much the same scheme both of scope a arrangement as this Museum; it has its own library technical works and its lecture room, and connected with by a covered passage is the School of Arts and Crafts (Kun gewerbe-Schule), a building of nearly the same size.* T Kunstgewerbe Museum at Berlin has a similar provision students in an adjoining building; it has many points similarity with this Museum (though the principle of rangement is different). It includes very little sculpture architecture, and no paintings. That museum, again, is a much smaller scale.

ARRANGEMENT OF THE COLLECTIONS.

The question has been much debated whether the ma basis of arrangement of a museum of this character shou be that of material or of period. There is undoubte much to be said for both principles, and it can hardly asserted that any unanimity of opinion on the point has been reached. On the Continent generally the histori method is preferred, Vienna and Stuttgart being nota xceptions in favour of the "material" system; but even n the principal "historical" museums, as at Berlin and Iunich, it is found in practice necessary to adopt a subidiary arrangement—usually in a separate part of the uilding—of exhibits grouped by material. As a general ule these museums are intended to afford opportunity for tudy to the student of art and history, but do not take into onsideration the special requirements of students of industrial and decorative art. The decision of the Board in 1908 o arrange the Victoria and Albert collections according to aterial, and the correlated decision to establish eight eparate departments were in accord with the avowed rimary aim of the Museum, that of providing facilities for raftsmen and students.

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* Extracts from the report by Sir Cecil H. Smith, director and secretary of the Victoria and Albert Museum, for the years 1909 and 1910.

* The heads of the different departments of the museum sent round to lecture at local specialised exhibitions, partly w the definite object of keeping the central institution in touch w the manufacturers.

The work of transferring and rearranging the exhibits egan as soon as the first portion of the new galleries became vailable. It was carried out generally on the lines laid own by the Committee of Rearrangement, 1908, as regards e principle of arrangement by material; but one or two odifications of the committee's recommendations in regard the allocation of rooms to departments were found to be ecessary as the work progressed.

A further considerable rearrangement of some parts of e collections was involved in 1910 by the acquisition of the alting Bequest. Under the terms of Mr. Salting's will was necessary that the whole collection should "not be stributed over the various sections, but kept all together ccording to the various specialities of my exhibits."

Utilisation of the Additional Space.

The amount of exhibition space available in the old uildings of the Victoria and Albert Museum (exclusive of e Oriental Galleries in Imperial Institute Road and the ibrary) was approximately 135,000 square feet. The additional space provided by the new buildings is approximately 0,000 square feet, or nearly 1½ times as much again. his great increase of area might seem to indicate that the useum is now provided with more than sufficient room to eet the natural expansion of the collections for many ears, but, as a matter of fact, it will be found that when l the collections requiring exhibition have been finally set t there will even now be very little, if any, space to spare. is true that in some places, as, for instance, in the east d west halls, while the walls are almost completely vered, the floor is at present but little occupied with hibits—greatly, it may be said, to the gain of the great chitectural monuments, which can be seen and studied in eir most instructive and artistic point of view as indi- dual units; but this open spacing can only be regarded as luxury of the moment, as a number of objects (mostly quisitions of long standing) are now being prepared for hibition, for which this floor space will be required. oreover, it must be remembered that before the move into e new buildings the collections were one and all exceedingly ngested. In order to estimate what this congestion was, is only necessary to compare the space occupied by some the collections in the old building with that which they l to-day.

Casts.

One of the problems arising out of the rearrangement of e collections which still remains to be settled is that of e disposal of the large and important collection of casts, ainly from architectural originals, which are housed for e most part in the Square Court, and, indeed, the whole estion of including casts in a museum of this type.

The regulations of 1863 directed that "where original ork could not be procured, the system hitherto pursued of presenting the finest known examples by electrotypes, sts, and drawings will be followed, it being always kept in ind that the aim of the Museum is to make the historical d geographical series of all decorative art complete, and lly to illustrate human taste and ingenuity." It is not together surprising that with so generous a programme the useum authorities soon began to find themselves pinched r space; and a reduction of the cast collection speedily llowed: in 1866 the Council of the Architectural Museum Tufton Street were requested to remove those casts which ere not required for the Museum; the Council, however, eferred to take away the whole of their collection. The llecting of casts, however, went on apace; in 1874 the eat Architectural (now "Square") Court was completed, d one-half of it was at once nearly filled with the cast of rajan's Column. In 1881, at Mr. Walter Perry's sugges- on, it was decided to form a collection of casts of Classic ulpture illustrating the history of Greek art "though some- hat outside the scope and object of the Museum." In 1907 this large collection (then occupying the entire South Corridor) was transferred to the British Museum.

In a museum of this character, which aims at representing the continuous development of various crafts and artistic processes from an educational standpoint, it is obviously difficult to effect this purpose by means of original specimens alone. In some cases, at least, gaps will occur, and in order to fill these recourse must be had to casts, electrotypes and photographs. As regards photographs and electrotypes, space for this purpose can usually be found without much difficulty. Casts, on the other hand, being as a rule of some bulk, have to be specially considered. Given the necessary space, it is probable that the most satisfactory result would be obtained by acquiring just so many as are needed to fill gaps, and arranging them in their places among the originals. The objection to this course is that either the cast must be coloured to look like an original, in which case a mistaken impression may be conveyed, or the cast is left in its natural colour and an unpleasant, staring effect is produced. In Paris, Berlin, and Munich the practice has long been followed of installing as complete as possible a gallery of casts in a separate building in reasonable proximity to the collections of originals. But if the whole body of casts is treated as a separate and supplementary collection, the question at once arises, how far this segregation of casts is to be carried.

Purchases.

The great increase in the prices realised by all works of art within recent years makes the problem of acquisition by purchase one of serious moment. As regards the collections of this Museum it may be said that, taken all in all, they represent a series which will bear comparison with those of any other existing institution. The English authorities had the advantage of being early in the field, and bought at prices which often appear almost ludicrously small in the light of present-day experience. Assuming that the limits of what has been done by designers and craftsmen in the past were known, it might be supposed that a collection so formed would by this time have attained a standard of at least approximate completeness. But even on this assumption the contention is not justified. The rearrangement of the collections in precise classification and with a more adequate spacing has thrown into clearer relief the more obvious gaps which exist in every department; and these gaps alone, in the increasing competition of to-day, must take many years to fill. On the other hand, if the Museum is to serve its purpose not only as a great central repository of industrial and ornamental art, but also that of an organising centre for affiliated institutions of a similar nature throughout the Kingdom, it is obvious that the demands on the purchase grant will in any case not diminish.

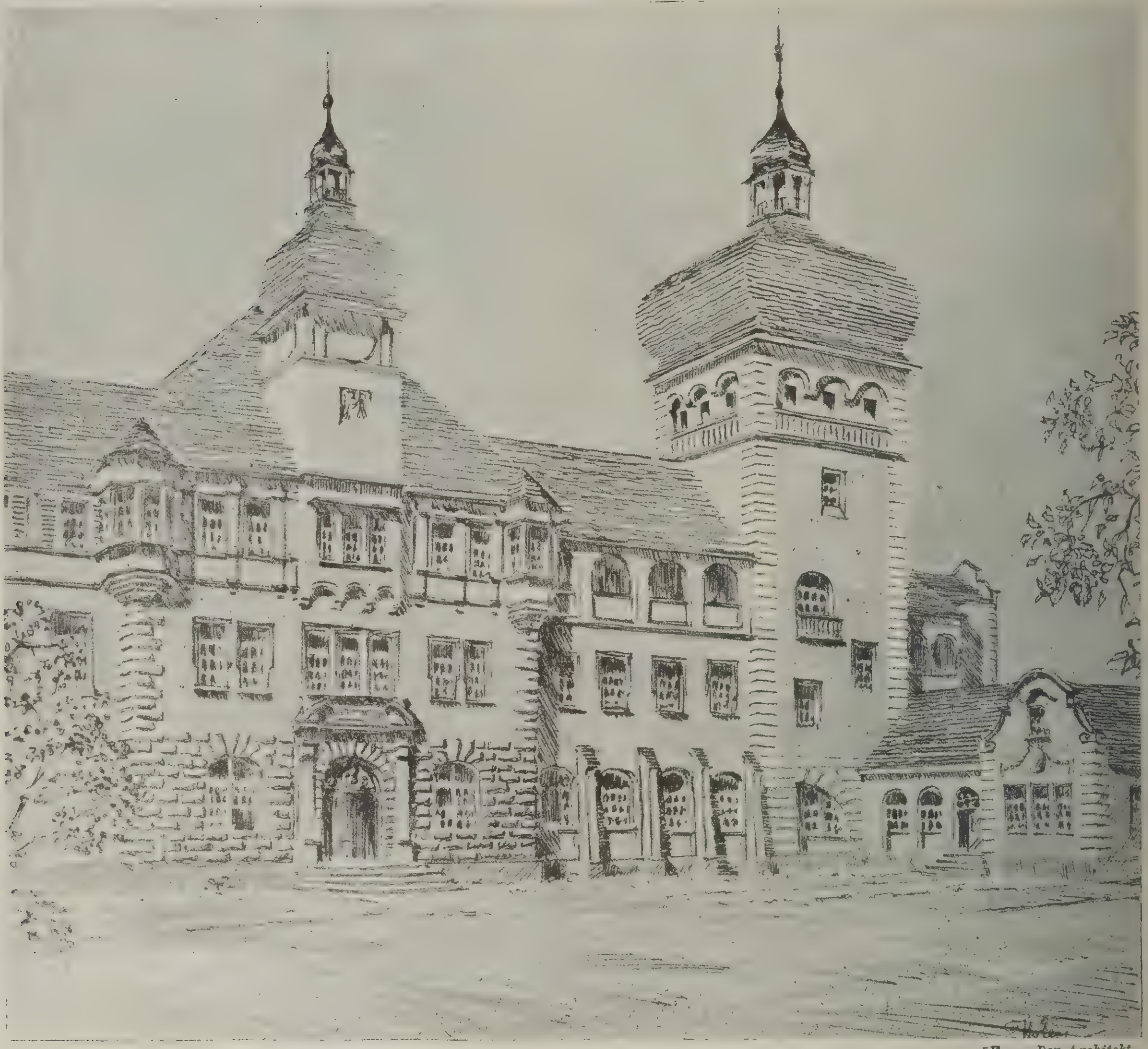
And, as against this, we are faced with the increasing difficulty of cost. The inflation of auction-room prices, to whatever cause it is due, has practically left public institutions, with their strictly limited means, deprived of any chance of success in open competition. The day for bargains is past when every corner of Europe is being ransacked by dealers and when the transactions of the auction room and the prices paid are the common subject of conversation. Nor is it only with the famous masterpieces that the difficulty is making itself felt; the inflation has affected more or less every range of art collection, partly from contagion and partly because of the multitude of speculators who have sprung up in consequence of it.

Loans.

The principle of accepting objects on loan for various periods has from the first been followed in the Museum, and from 1862 onwards special loan exhibitions of particular branches of art have from time to time been organised. This principle has on the whole been found advantageous; in many instances objects at first deposited on loan have become the property of the Museum; gaps in the permanent collections have been temporarily filled; and the authorities have been brought into touch with specimens which might otherwise have escaped their notice. It is interesting to note that the French authorities have recently adopted a similar principle; it is understood that they base their action on the ground that by this means the public are permitted to enjoy fine things which would otherwise be unknown to them, and that the relations between the museums and the amateurs are thus drawn closer. A condition is strictly observed that no object is admitted which is of mediocre quality or even suggests any connection with commercial advertisement.

MODERN EUROPEAN ARCHITECTURE.

AUSTRIA.



[From *Der Architekt*.

DESIGN FOR A MUSEUM AT INNSBRUCK.—By Dr. Karl Holey, of Vienna.

Until 1909 the practice had been followed of exhibiting loans among the main collections. On the other hand, there is much to be said for an isolated exhibition of objects on loan.

The large Octagon Court adjoining the Exhibition Road entrance was finally selected for the purpose of a loan court, chiefly because from its structural character and position it seemed to offer most suitably the space required and to be most easily detachable as a unit from the main scheme of arrangement. On the other hand it offers only a limited amount of wall space, and it possesses no windows on the lower level. It has therefore been found necessary to overflow in two instances; the fine series of stained glass windows lent by Mr. Pierpont Morgan has been erected in front of the adjoining windows of the South Corridor, and the series of four tapestries from Hardwick lent by the Duke and Duchess of Devonshire are exhibited in the Central Court.

Decoration and Reconstruction.

The decoration of the walls, &c., of the new building, with the object of providing an appropriate setting to the various groups of objects comprised in the collections, is a problem recognised as one requiring careful consideration. As the structure is not yet in a condition suitable for permanent decorative treatment, colour has as yet been applied only in a temporary manner where it was considered necessary, and the greater part of the wall space has for the present been left uncoloured. In August 1909 a suggestion for the decoration of the walls of the Octagon Court, accompanied by the generous offer to paint one of the large lunettes for the cost of the materials and scaffolding, was received from Mr. Frank Brangwyn, A.R.A. After careful consideration his offer was declined. It was held strongly that the chief decoration of a museum such as this should be the exhibits themselves, and that the decoration of the wa should assist the lighting where necessary, but should r otherwise challenge attention. It is intended to apply t principle throughout the new buildings when the final de rative scheme is taken in hand.

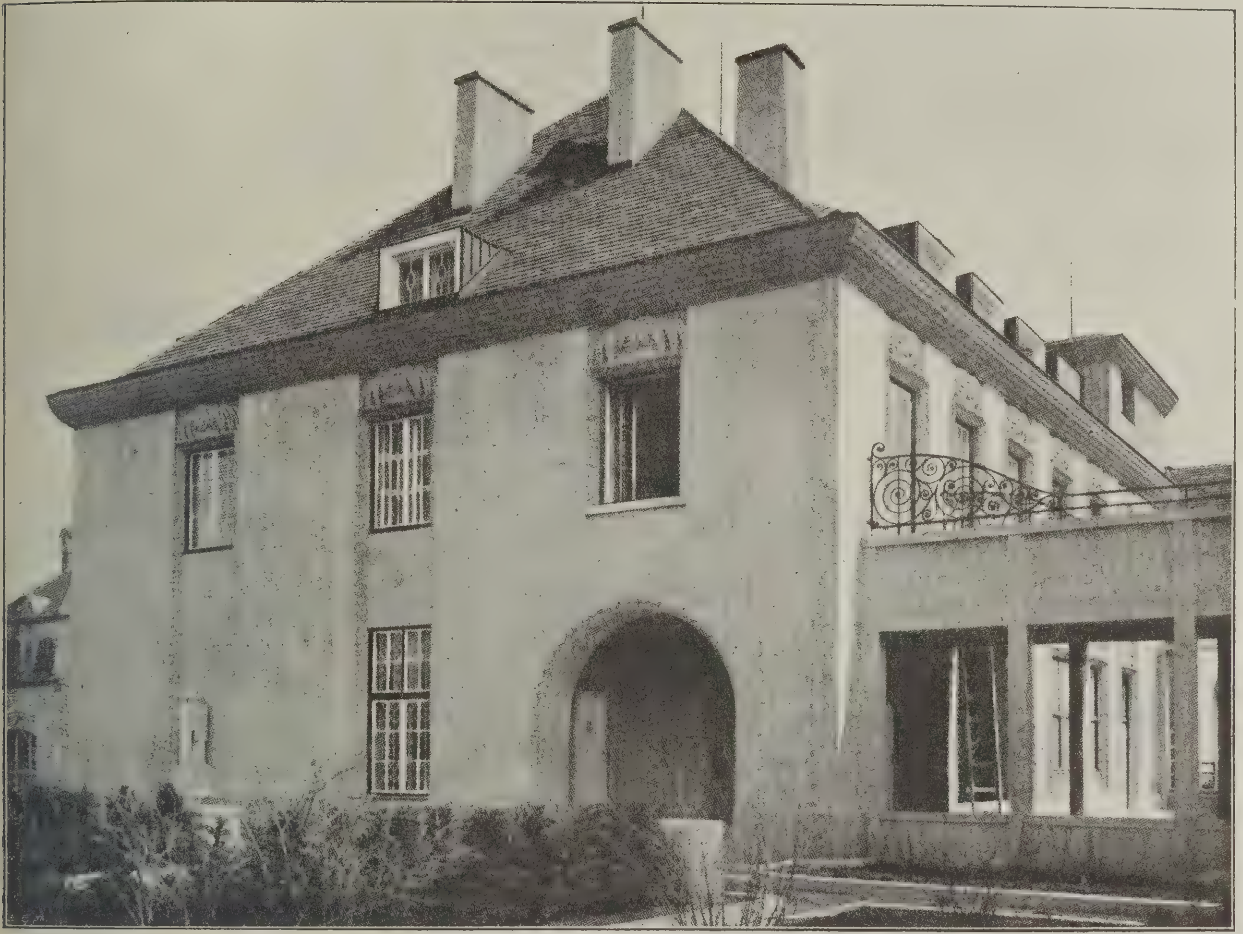
During the year 1910 considerable progress was made replacing the heating and lighting arrangements in the ol part of the building by a more modern system, and in t provision in the picture galleries of new fireproof roofs. T new roofs are so constructed as to admit a north light on

UNIVERSITY OF LONDON LECTURES O ARCHITECTURE.

MR. BANISTER FLETCHER, F.R.I.B.A., will comme a course of twenty-four University Extension lectu on "Ancient Architecture" at the British Museum (by p mission of the trustees) on Tuesday, October 3, at 4.30 P. Also a course of twenty-four lectures on "Renaissa Architecture" at the Victoria and Albert Museum (by p mission of the Board of Education) on Monday, October at 5 P.M. These courses are to be fully illustrated by lant slides, photographs, diagrams, and models. They will peal not only to architects, but to all lovers of art and public in general, to whom a knowledge of architect enhances a hundredfold the pleasures of travel. T Museums, which seem the natural home for a series of su lectures, abound in ancient and Renaissance examples, whi will be visited and explained by the lecturer during the cl held at the end of each discourse. Attendance at the fi lecture at each Centre is invited, free of charge. Full p ticulars can be obtained from Miss Gaudet, 120 Chey Walk, Chelsea, S.W.

MODERN EUROPEAN ARCHITECTURE.

AUSTRIA.



[From *Der Architekt*.

HAUS AST" IN THE HOHE WARTE, VIENNA.—Professor Josef Hoffmann, Architect.

MEMORIALS OF PREHISTORIC MAN IN HAMPSHIRE.

A communication presented to the British Association at the Portsmouth meeting, 1911. By W. Dale, F.S.A.

THE memorials of prehistoric man in Hampshire are connected, firstly, with the great beds of gravel which occur by the sides of its rivers and principally near their mouths. The gravel beds of the Avon from Milford Hill in Wiltshire down to Christchurch in Hants, and the cliff sections at Barton and Milford, at Hillhead, not far from Portsmouth, and at a point in the Isle of Wight nearly opposite, have all yielded Palæolithic implements in great variety. No district is, however, more prolific than the Valleys of the Itchen and the Test. In the gravel pits of the Southampton delta, which is covered with deposits from the rivers, we can see a mass of material from fourteen to twenty feet thick resting upon Bagshot or Bracklesham beds of Eocene Age. The material is nearly all sub-angular flints, with here and there a piece of sarsen or a hardened mass of Bracklesham fossils.

The great age claimed for these gravel beds and for the associated implements is confirmed by the existence near Southampton of several streams which have cut for themselves secondary valleys of great depth right through the gravel since it was deposited and through the underlying beds. One of these valleys, at right angles to the Itchen near St. Denys, attains a depth of about fifty feet. When the Roman station of Clausentum was placed on a bend of the Itchen at the bottom of the valley the physical conditions of the neighbourhood were the same as they are to-day.

The implements gathered from these gravels are of great variety and are representatives of all the various forms into which palæoliths can be classed. At the same time it is not possible to pick out certain forms and allocate them to distinct horizons as is now done by many on the Continent. There are also many rough and intermediate forms which would be called Eoliths by some.

Passing to the Neolithic period, Hampshire gives no evidence of any intermediate stages or anything to bridge over the great physical and palæontological gap which separates the two periods. As might be expected in a country where flint is abundant Neolithic implements are plentiful and specimens of almost all the types known elsewhere in Britain have been found. The most common implement, apart from the simple form, is the roughly chipped celt. Celts, very finely chipped, and also those partly or wholly polished, are also found. True arrow-heads, either barbed or leaf-shaped, are not common. Along the coast several small celts of green stone have been found which look like imports from the Continent. Apart from the implements, undoubted relics of Neolithic man are few in Hampshire. A few long barrows exist in remote parts. One destroyed on Stockbridge Down some years ago contained an unburnt burial in a crouched form. Most of the conspicuous hills are crowned by defensive earthworks, and some of these probably date from Neolithic times. One of the finest is Danebury, near Stockbridge. The inner, or principal, vallum rises thirty-two feet above the ditch, and there is an elaborate system of banks defending the openings. A better known earthwork is that on St. Catherine's Hill, Winchester, which may belong to the Bronze Age. Many of the sides of the downs have "lynchets" or terraces of cultivation which are of uncertain age. The only megalithic monument in the county is on the western side of the Isle of Wight and is called the "Longstone." It was evidently originally a dolmen. One stone remains upright, and the companion stone lies by its side. Barrows of the Bronze Age are very abundant. This is particularly the case in the New Forest, where one may look over vast tracts of country unaltered since prehistoric times, save for the existence of the Scotch fir. Many hoards of bronze implements have been found in the county, and single specimens are not scarce. Some of these are of an early type. One is an early dagger of the type from which the spear-head was evolved. A very early flat celt, belonging to

Period 2 of Professor Montelius, was also found near Southampton. This is of a type now commonly found in Ireland. A short square socketed celt and a lance-head with loops, cruciform in section, both also have Irish affinities and may be regarded as relics of that time in the Bronze Age when there was commerce between Ireland and Scandinavia, and Southampton was a convenient port of call.

OUR CONTEMPORARIES FROM OVERSEAS.

THE *American Architect* (New York) contains an illustrated article on the Exposition Buildings in Rome. The principal plates are devoted to four houses designed by Mr. George O. Totten, jun., for the Hon. J. B. Henderson, and erected in Upper Sixteenth Street, Washington. These houses are intended for Embassy buildings, and two are now occupied by the Swedish and Danish Legations.

Berliner Architekturwelt (Berlin) is this month almost entirely devoted to domestic architecture, country houses, suburban and town, single family houses and flats. There is also an interesting illustrated article on the architecture of Old Berlin, as represented by painters.

Construction (Toronto) has for its best features this month illustrated descriptions of two recently completed works in Great Britain, the Queen Victoria Memorial and the Chapel of the Knights of the Thistle. There is also a fully-illustrated paper read by Mr. Philip J. Turner, F.R.I.B.A., before the Quebec Association of Architects on the mason's art of the Middle Ages. Three houses in Toronto are illustrated, but they are not overwhelmingly beautiful.

Deutsche Bauzeitung (Berlin) gives further illustrations of the town hospital at Rixdorf, and an account, with view and plan, of the new Rathaus at Wittenau, near Berlin. Specimen pages and illustrations are included of a forthcoming book published by our contemporary, "Das Deutsche Bürgerhaus," which will be in five volumes containing 390 plates.

Stone (New York) issues a full-plate view of the monument of Beato Pacifico (died in 1437) in the church of Santa Maria Gloriosa dei Frari, Venice. An illustration of a well-head of Carrara marble in a Venetian palace courtyard, which is Byzantine work of the tenth century, is interesting.

Engineering Record (New York) has an article on "The effect of hydrated lime on Portland cement mortar," by Mr. Harry Gardner, Assistant Professor of Sanitary Engineering, University of Kansas, in which the author gives the results of his research and tests on the subject.

La Construction Moderne (Paris) illustrates the church of Sainte Barbe at Pont-de-Buis, Finistère, of which Mons. Chaussepied is the architect, and also a monument at Mar-

OBITUARY.

ON the 22nd of this month there passed away at "Glendower," Teddington, at the age of eighty-one, Mr. James Pigott Pritchett, architect, of Darlington. He was born in York on May 14, 1830, and was educated at St. Peter's School there. After serving his time with his father, the late J. P. Pritchett, of York (who practised on his own account in York for fifty-five years), he joined him in partnership in 1853, and in 1854 he succeeded to the practice in Darlington of his brother-in-law, the late John Middleton, who removed to Cheltenham. From 1854 to about 1910 he was engaged in an active general practice, though perhaps he was best known for his ecclesiastical work in the North of England. His son, Mr. H. D. Pritchett, was associated with him in the practice from about 1880, and in 1900 was taken into partnership, and is now carrying on the same. Mr. J. P. Pritchett's health became very bad about 1905, and he had to undergo a serious operation, after which he was never the same, and he gradually withdrew more and more from active work, leaving it principally to his son. In May of last year it was deemed advisable to send him south, and as he was needing a great deal of care and medical attention he was placed in the Nursing Home of "Glendower," Teddington, where he received every attention, and where he breathed his last without any pain, but being quite worn out. His works comprise seventeen cemeteries, chapels, &c., in various parts of the country, twenty-five new churches, twenty restorations and additions to churches, twenty-eight Nonconformist chapels, sixteen parsonages, eighteen schools and Sunday Schools, four banks, one large training college at Darlington, twelve offices, hotels and shops, restorations to two castles, over forty mansions, houses and cottages, and, in addition, sundry monuments, parish halls, &c., and houses on the Cleveland estate at Darlington. He was surveyor this estate under the late Duke of Cleveland, then unde the present Lord Barnard, and he and the firm are respo sible for a large amount of laying-out and development. H was connected with two or three archæological societies, an frequently lectured and gave papers on archæological subject His surviving family consists of two sons and three daughter one of the former and two of the latter being in New Zea land. He was for a good number of years a Fellow of th Royal Institute of British Architects, but resigned, an applied for and obtained re-admission in 1907. He had good deal to do with the establishment of the Norther Architectural Society.

Correspondence

[The Editor will not be responsible for the opinion expressed by Correspondents.]

The Land Taxes.

Sir,—So many cases of extraordinary low valuation a being brought to the notice of the Land Union that we thin it necessary to again draw the attention of owners, the solicitors, and agents to Section 2 (3) of the Finance Ac 1909-1910, by which owners of leaseholds, as well as fre holds, are entitled to make application (within three month after the original site value has been settled under the Act for a substituted higher site value as a protection again increment value duty, in all cases where the figures of provisional valuation disclose a site value less than the sit value at the date when the owner purchased it, if such pu chase was within twenty years of April 30, 1909, or durin his lifetime. Many holders of leaseholds are under the im pression that as they did not purchase and never were th owners of the site itself they cannot obtain a higher or substituted site value. This is not so. Anyone with a ta able interest in the land in question can apply for an obtain "substituted site value" within three months of th settlement of the "original site value."

A substituted (or increased) site value on quite a sma property which was brought to our notice recently has, o the application of the owner, been increased by about 50 pe cent. above the original site value fixed by the provisiona valuation. Inasmuch as the increment tax has to be ascer tained by comparing the value of the site when an occasio arises, with a substituted site value (if applied for and ob tained), owners will see the enormous importance of apply ing for and insisting on these substituted site values whic are to be based upon the prices they paid for their propert in better times, before threatened legislation and the subse quent depression caused by the land taxes.

In the case referred to, on a leasehold property value at about £700 only, the substituted (or increased) site valu was applied for and obtained, and it will probably save th owner about £25 increment duty, which otherwise he woul have been obliged to pay on realisation, even if he had sol at a loss.

Your readers will understand what this may mean in case where the value of the property runs into thousands o pounds.

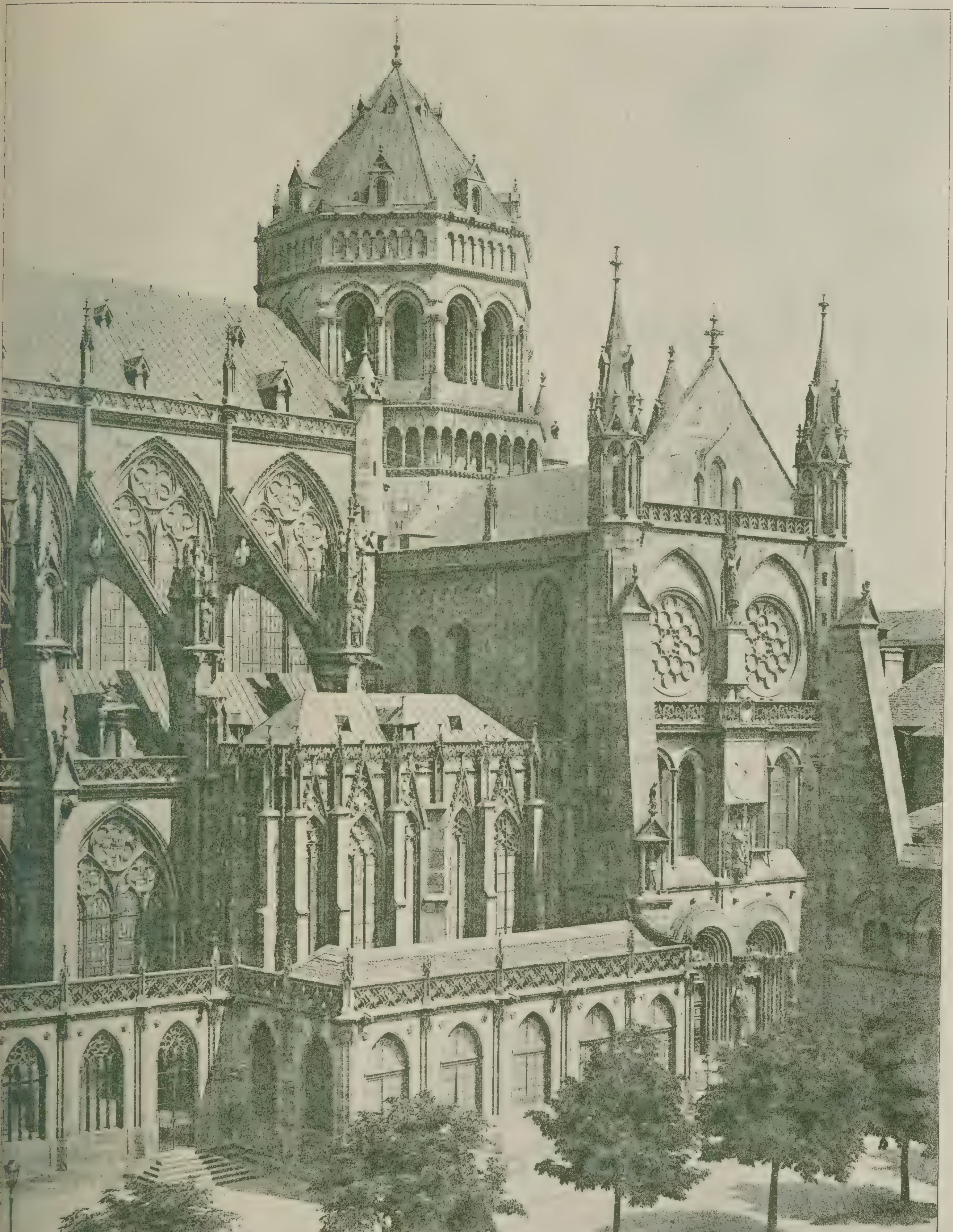
The Land Union is dealing with the matter more ex haustively in a pamphlet now in the Press, which ca be shortly obtained on application to any branch of th Land Union, or to me at this address.—Yours truly,

C. H. Kenderdine.

Secretary, The Land Union, St. Stephen's
House, Westminster.

COMPETITION NEWS.

Skegness.—In the competition for a new cottage hospital for Skegness and District, the following plans have been placed by the assessor, Mr. Ernest R. Sutton, F.R.I.B.A:—1, F. J. Parkinson, Richmond Terrace, Blackburn; 2, Moore & Archibald, Albert Road, Middlesbrough; 3, J. Auty, A.R.I.B.A., Peel Street, Morley; 4, Barrowcliff & Allcock, Town Hall Chambers, Loughborough. Fifty-six sets of drawings were sent in response to the committee's invitation.



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VIEW OF SOUTH-EAST ANGLE: STRASSBURG CATHEDRAL.

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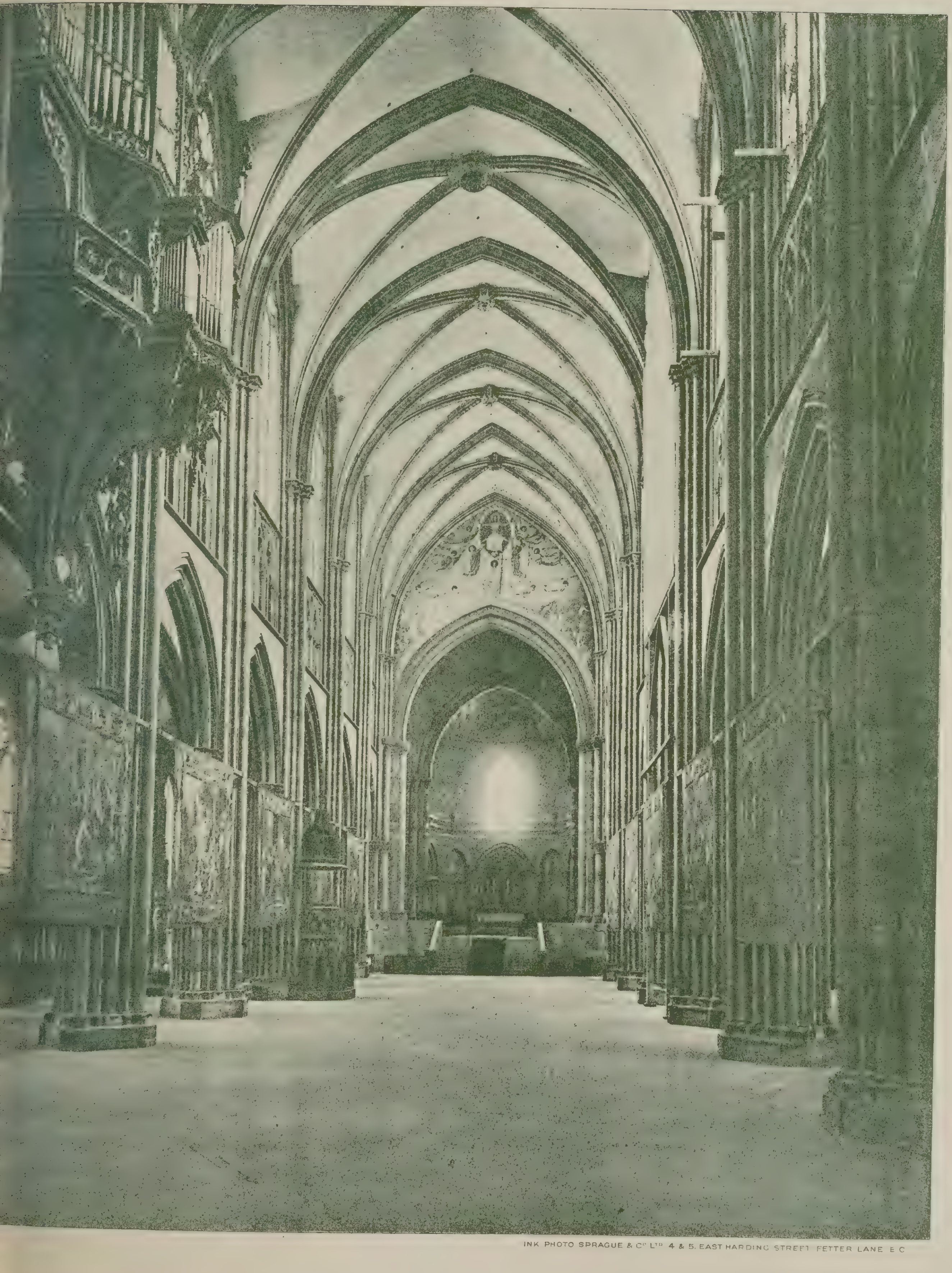

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INTERIOR OF NAVE: STRASSBURG CATHEDRAL.

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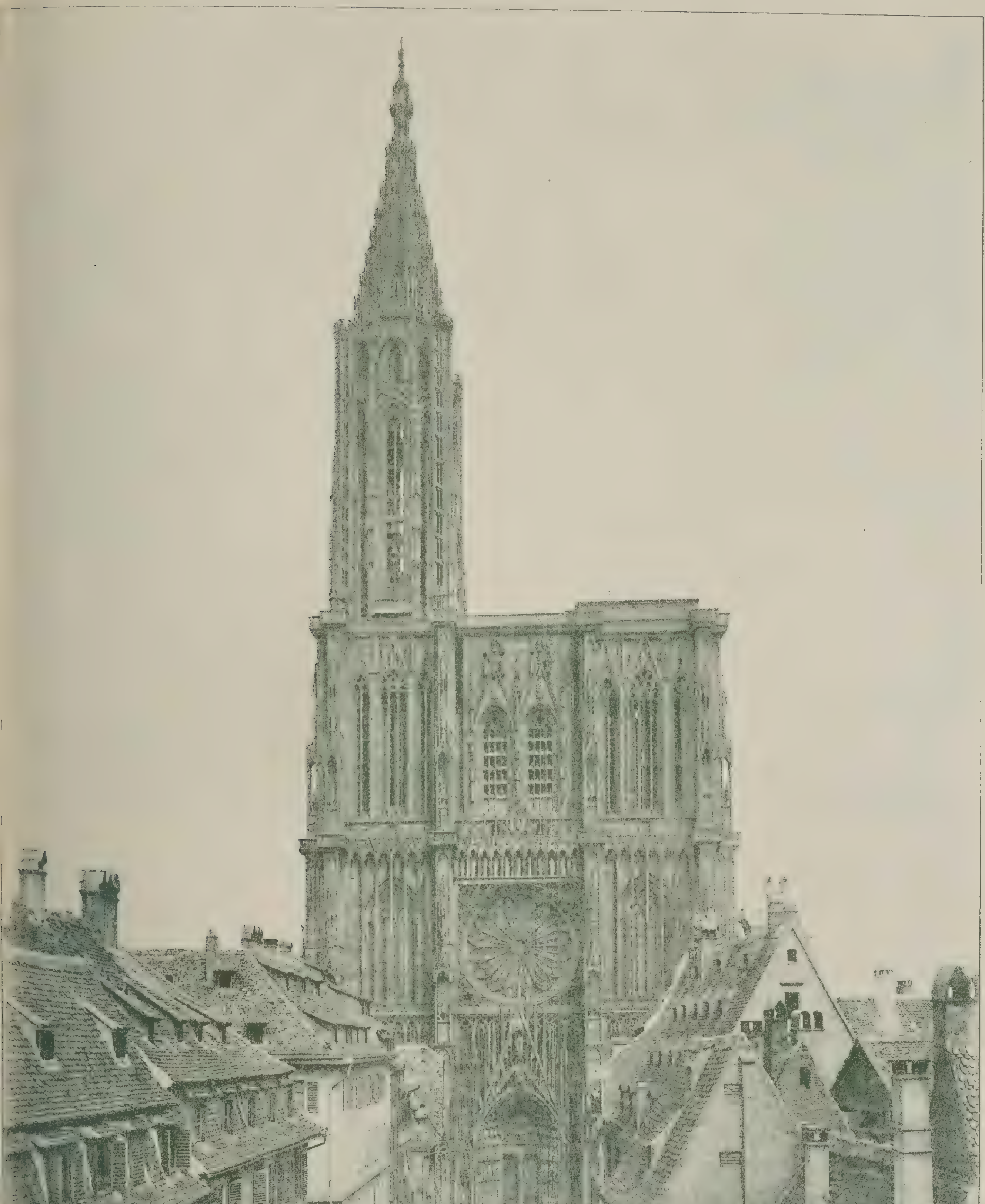

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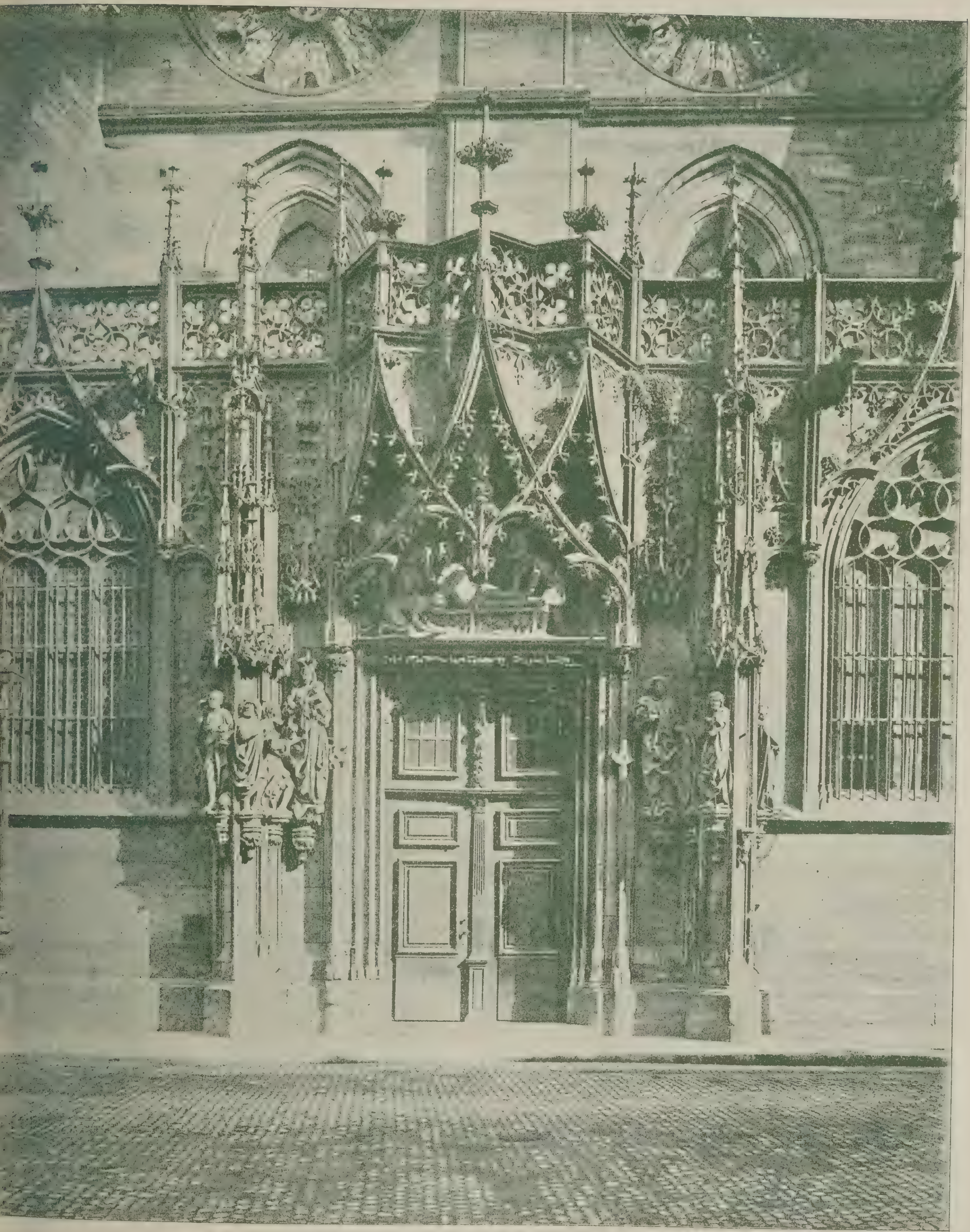
WEST FRONT: STRASSBURG CATHEDRAL



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PORCH OF S. LAWRENCE'S CHAPEL: STRASSBURG CATHEDRAL

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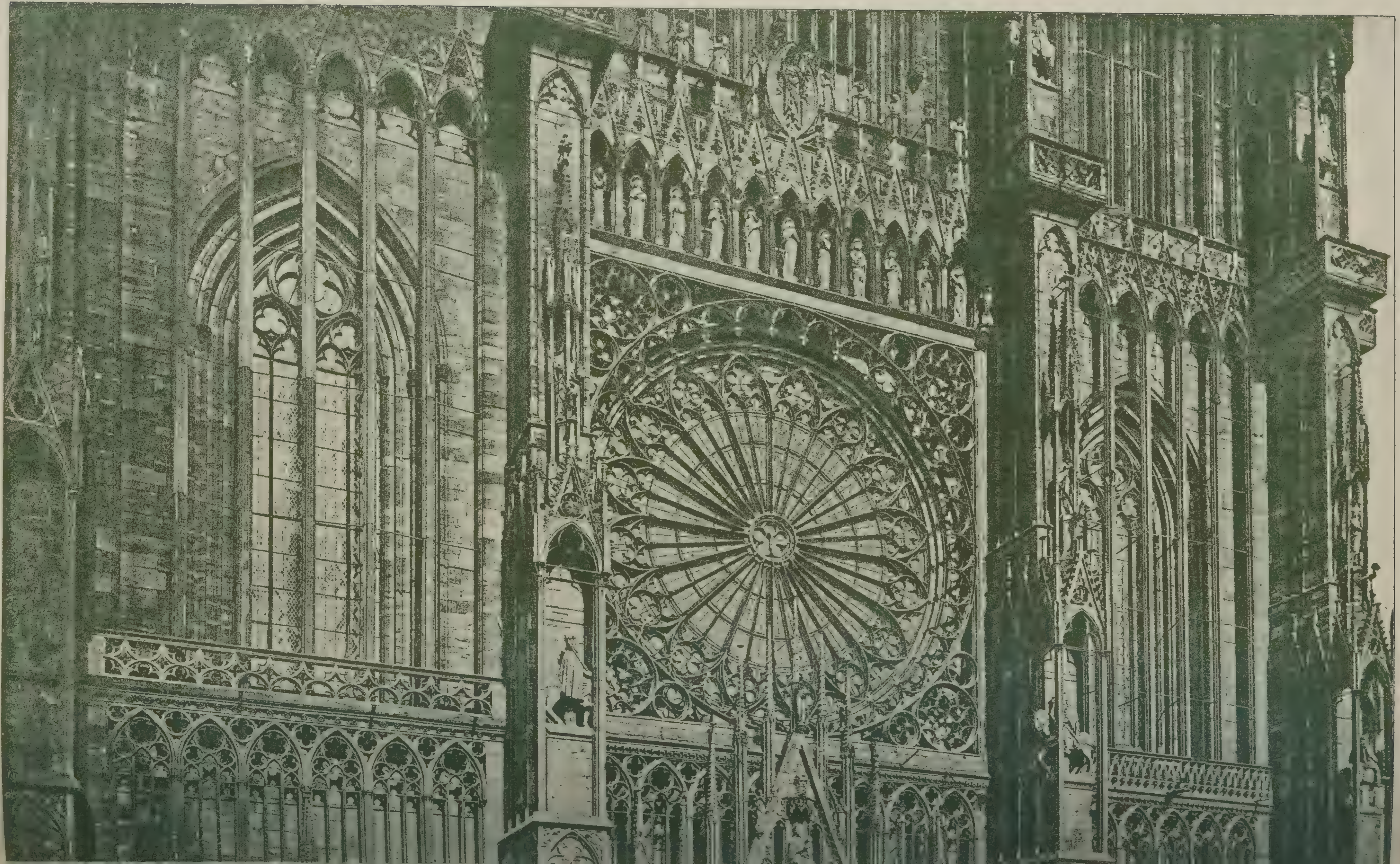

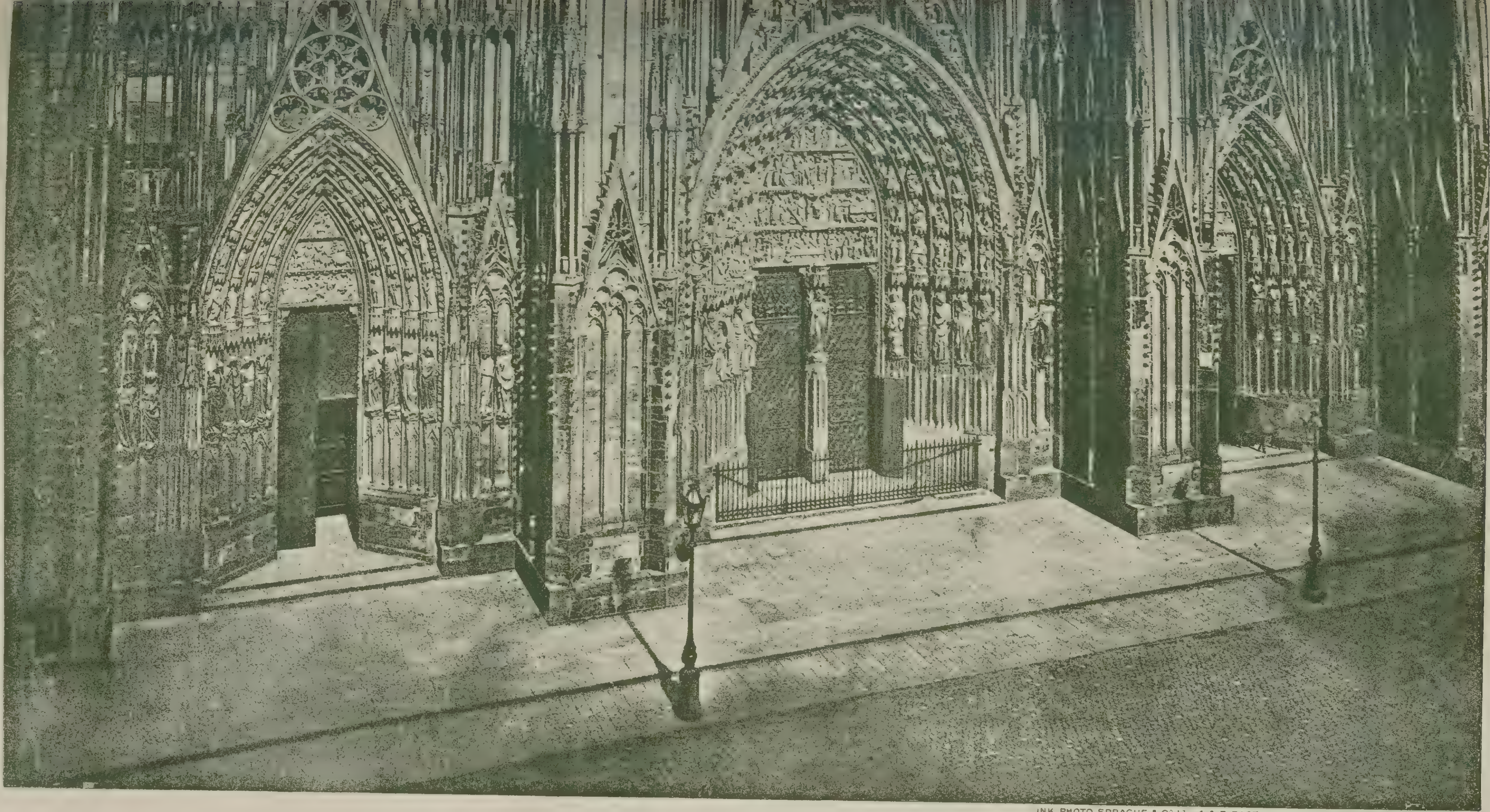

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Detail of West Front: Strassburg Cathedral.

The Architect.

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FORTHCOMING EVENTS.

Saturday, October 7.

Institution of Municipal Engineers : Joint Meeting of Yorkshire and Northern Districts at Leeds.

Northern Architectural Association : Visit to South Shields.

Monday, October 9.

Institute of Sanitary Engineers : Opening Sessional Meeting at Caxton Hall, Westminster.

Tuesday, October 10.

Guild of Architects' Assistants : Visit to New Polytechnic Building (Mr. G. A. Mitchell, A.R.I.B.A., architect).

Wednesday, October 11.

Manchester Society of Architects : Special Meeting; Exhibition of Drawings; Presidential Address by Mr. Edgar Wood, F.R.I.B.A., and Social Evening.

Thursday, October 12.

University College, London : First of a course of eight public lectures on "English Mediæval Architecture," by Mr. E. S. Prior, F.R.I.B.A.

Friday, October 13.

London Salon of Photography : Lantern Lecture, entitled, "With a Camera in Holland," by Mr. Arthur Marshall, A.R.I.B.A.

Glasgow Technical College Architectural Craftsmen's Society : Mr. J. S. Glen Primrose on "The Microscopical Examination of Architectural Materials."

MATERIALS OF THE PAINTER'S CRAFT.

If there were no other reason for a critical study and careful research into the nature of the materials that have been used by painters in the past, the durability that has been a striking characteristic is sufficient to raise such study and research from the level of antiquarianism and archæology to that of a practical science. Dr. Laurie, in his recently published book* on the subject, says: "The perfect freshness of a Van Eyck, as compared with the desperate condition of many a picture painted only a few years ago, is very difficult to understand, and at the end of all the light that modern science can throw upon the question we have to admit that the secret of Van Eyck has perished with him, and that he had a mastery of certain technical processes which has resulted in a durability of workmanship which to-day we cannot imitate."

Nor is the technical perfection of material peculiar to Van Eyck alone. We cannot feel proud of our modern skill in fresco painting when we contrast the fate of that at Westminster with the durability of the recently discovered frescoes of Knossos, dating back probably to about 1500 B.C. Even palæolithic artists have proved, as at Altamira, their ability to use effectively a palette limited to durable colours. In fact, one might almost say that as a general rule it is only within quite recent times that durability has been otherwise than general amongst the materials used in the painter's craft.

Dr. Laurie attributes the superiority in durability of the painting of Van Eyck and his contemporaries, his forerunners and his successors, to the fact that the artist of earlier times was also a craftsman. As an apprentice he learnt how to prepare the ground, whether panel, canvas, or wall, on which his master was to work. He also learnt how to prepare and even to make the pigments, to purify and grind them, and to mix them for use with suitable mediums and varnishes. Hence was built up a tradition in which what was faulty was rejected and only what was reliable retained. It was the painter's ambition not only to paint a beautiful picture, but one that by its permanence should be a credit to his craftsmanship. He therefore did not grudge the time, the labour or the patience required to attain his end, nor did he rely upon others as does the modern painter for his material.

The trade of the artists' colourman as a separate craft did not exist. Each artist was his own colourman, and his reputation was therefore as much at stake on the permanence of his productions as on their æsthetic quality. There is, besides, another consideration which we are too apt to forget when we recognise and admire the great works of the past in any art, in architecture as well as in painting. The artist-craftsman of the past doubtless made his experiments, and tried new materials, new processes and new combinations. The law of survival of the fittest has dealt with these. His successes have endured. His failures have vanished.

Whilst for the most part the teaching of master to apprentice was oral and traditional, there remain to us some few written collections of recipes and descriptions of materials and methods that throw light on much of the practice of the past, notwithstanding that the language being often colloquial rather than classical, difficulties of interpretation have tended to obscure the precise meaning of some of the information the writers desired to impart. From Vitruvius, Pliny, Theophrastus, and Dioscorides, but especially the two former, we learn something of the practice and processes of the Greeks and Romans. As in modern times there appear to have been two schools of painters, with different points of outlook corresponding to our Impressionists and Realists. So also there was a distinction in vehicle, one group of painters using beeswax, and others some medium of a different character, but of which there is no definite information to be obtained anywhere, we are told by Dr. Laurie. Our author is, however inclined to favour the view that an egg-medium was employed by the Greeks, just as it was in mediæval and fifteenth-century pictures, and that the reason why Pliny never mentions the medium is that it does not occur to him to refer to something so obvious, and which is a matter of common experience and practice.

From the writings of Cennino Cennini, early in the fifteenth century, Dr. Laurie quotes largely, and gives us much information as to the mediæval practice in fresco painting, to which something is added by Vasari in his introduction on technique to his *Lives of the Painters*. Knowledge of ancient pigments and mediums is obtained from Cennini and from the manuscript of a still earlier writer, the unknown monk Theophilus, whose *Diversarum Artium Schedula* contains sound advice as well as curious instruction, not only on painting of panels and illuminated manuscripts, but also on glass painting, and gives us a vivid picture of the artistic technique of the latter half of the eleventh century. From Cennini, too, we learn the

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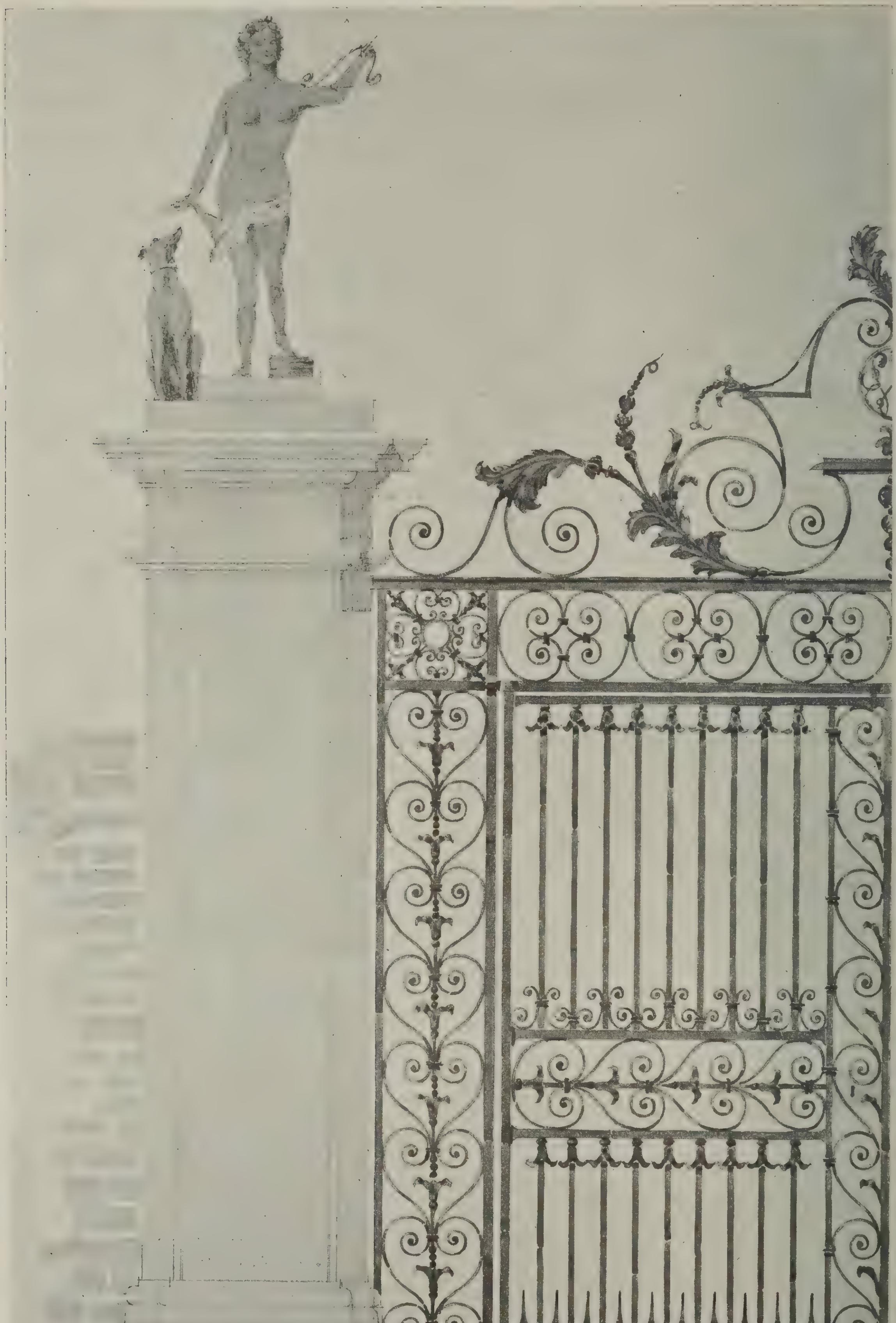
* *The Materials of the Painter's Craft in Europe and Egypt from Earliest Times to the End of the Seventeenth Century*, with some account of their preparation and use. By A. P. Laurie, M.A., D.Sc., formerly Fellow of King's College, Cambridge, Principal of the Heriot-Watt College, Edinburgh. Author of "Greek and Roman Methods of Painting." (London and Edinburgh: T. N. Foulis. 6*s.* net.)

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



WROUGHT-IRON GATES TO BERRYSTEAD HOUSE, OUNDLE, NORTHANTS.—Measured and Drawn by Mr. F. J. Lenton.

mediæval practice in gesso work and in gilding, in tempera fully, and, to a limited extent, in oil painting.

An interesting subject fully treated by Dr. Laurie is the preparation of the lakes used by the old masters. Many of the recipes given by the old manuscripts which he quotes he has himself tested. Our author then goes on to discuss the nature and history of varnishes, and the history of the oil medium, with special reference to the position of the brothers Van Eyck and the medium in which they painted. He especially points out the use of balsams, such as Venice turpentine, and comes to the conclusion that the older varnishes consisted of sandarac and pine resin, and later, mastic dissolved in linseed oil, the proportion of resin to oil being in many cases very high; that these thick varnishes were rubbed on hot with the hand; that amber varnish was also known, but must have been very dark in colour, and also varnishes in which the amber was dissolved in pine resin; that the use of oil of turpentine, spike oil, petroleum and alcohol in preparing varnishes is not mentioned till the sixteenth century, and it is only then that the use of pine balsams is frequently mentioned, and it is only at the beginning of the seventeenth century that recipes for preparing lake with, and dissolving verdigris in, pine balsam are given. Dr. Laurie's suggestion is that, notwithstanding the absence of confirmatory documentary evidence, the medium used by Van Eyck and his immediate followers was a balsam with a little admixture of oil. By experiment he has demonstrated the preservative value of such a medium for colours otherwise fugitive. To overcome the stickiness of the resinous medium it is suggested that it was emulsified with white of egg, and, further, that the earlier part of the picture might be painted with pure egg, or tempera, the emulsified medium used above this, and, possibly, finished with pure varnish.

The author concludes his careful and interesting analysis of the materials used by painters in the past with a prescription based on ancient practice and modern experiment for the painting of a picture which would last for ever.

WROUGHT-IRON GATES TO BERRYSTEAD HOUSE.

THESE gates and lead figures date from the seventeenth century. They were moved to their present position from Stoke Doyle Manor early in the nineteenth century. The piers probably were built then as they are not original, but may be copies of their predecessors. The lead figure represents Diana, and there is another on the opposite pier representing Apollo with his harp. They are both in excellent preservation. The gates are now very much damaged, most of the leaves being missing, but enough remains to effect the restoration shown.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

WE have received a fair number of drawings for the subject set for September—a porch or portico to an ecclesiastical building erected in England or Scotland prior to A.D. 1800. It is remarkable that a considerable proportion of these show Norman work, and whilst we would not go so far as to suggest the entire avoidance of the study of this period, it is not one on which the student should be encouraged to spend much time in preference to later and more fully developed forms of mediæval architecture. Just as in the study of Renaissance work, the productions of Elizabethan and Jacobean are best left alone by the young student, so Norman work should not be preferred to that of the thirteenth and early fourteenth centuries.

"Doric" has very carefully measured and drawn the north porch of Bridlington Priory Church, an excellent specimen of Early English work, with capital mouldings and carving. The drawings are executed in pencil, to half-inch scale, with details one-third full size.

"Avec beaucoup de Peur" sends a complete set of measured drawings of the north porch of Wells Cathedral, drawn to half-inch scale, with details full size and one-quarter full size. Whilst it is wise to use a wash of colour to fix the pencil work, our contributor should avoid endeavouring to impart a false prettiness by using fanciful tints. In measured drawings, the aim should be to make them workmanlike, and not pretty pictures.

"Alpha" also uses colour of rather too pretty tones in his drawings of the south porch of the chancel to St. Andrew's Church, Newcastle-upon-Tyne, a simple and unpretentious little structure, of which the chief interest lies in its roof of stone slabs, carried on three transverse arches. The general drawings are to quarter-inch scale, which is rather small for anything worth careful study; details half full size are a mistake, they should be either full size or not more than one-third full size to avoid misunderstanding. "Alpha" is on the right lines with his technique of water-colour and pencil drawing, but wants more practice.

"Seleth" has measured a porch added in 1503 to a church of about 1150, the Norman doorway of which is included in the drawings. Although so late in date, the carving shows Celtic tradition in the ornament. The general drawings are to half-inch scale, with details one-quarter full size, and are wisely given permanence by inking in and monotint. If a thing is worth measuring, the drawing should be worth keeping.

Mr. E. H. Gibson sends a sheet of drawings to the large scale of inch and a half to the foot of the porch of Askham Bryan Church, Yorkshire, which has a good Late Norman doorway showing signs of the Transitional period. Although to a large scale, Mr. Gibson's drawing would be better for some details to a still larger size.

"Jock" has selected for his subject the south porch of St. Michael's Church, Linlithgow, and has drawn same to half-inch scale, with one-quarter full size details of mouldings. These latter do not give us the impression of being quite accurate. "Jock" should avoid in measured drawings the use of occasional thick lines and solid black shadows, with the idea of getting sparkle. As we have said above, measured drawings should be workmanlike, and not pretty.

"Caer Ebrauc" contributes a well-executed drawing of the porch of Skelton Church, Yorkshire, drawn to half-inch scale, with details of mouldings, some one-sixth, and others one-half full size, neither of which scales is desirable, the former being too small, and the latter misleading. A better idea of the architectural relation of arch mould and jamb is obtained by drawing them one over the other in different colours, but to do this effectively and clearly, the scale must be larger than one-sixth full size for mouldings so intricate as in this case. It is a pity our contributor did not draw these mouldings full size; they are well worth it, being full of subtlety and skill.

We have decided to award this month a prize of one guinea each to "Doric" and "Avec beaucoup de Peur."

NOTES AND COMMENTS.

The National Trust has been blamed for not seizing the opportunity of purchasing Tattershall Castle for £2,000, less a donation of £100 from the proposed vendor, Mr. Albert Ball, but from the statement of Sir Francis Trippel to the *Times*, it is quite clear that the Executive Committee of the Trust were acting wisely in refusing to be made catspaws in a regular "old-master" transaction.

From Sir Francis Trippel's statement we learn that Mr. Hooley in the early part of last year had contracted to purchase from Earl Fortescue the Tattershall estate of 4,749 acres, and had agreed to sell the Castle, including chimney-pieces, to Mr. Ball for £1,125. Mr. Ball never completed his purchase, but, failing to get £2,000 for it from the National Trust, or even £1,500, cash down, agreed to the cancellation of his contract to buy. Very kind of him! We suppose he did not know where to look for another customer from whom he could get fifty per cent. profit on his unpaid-for purchase.

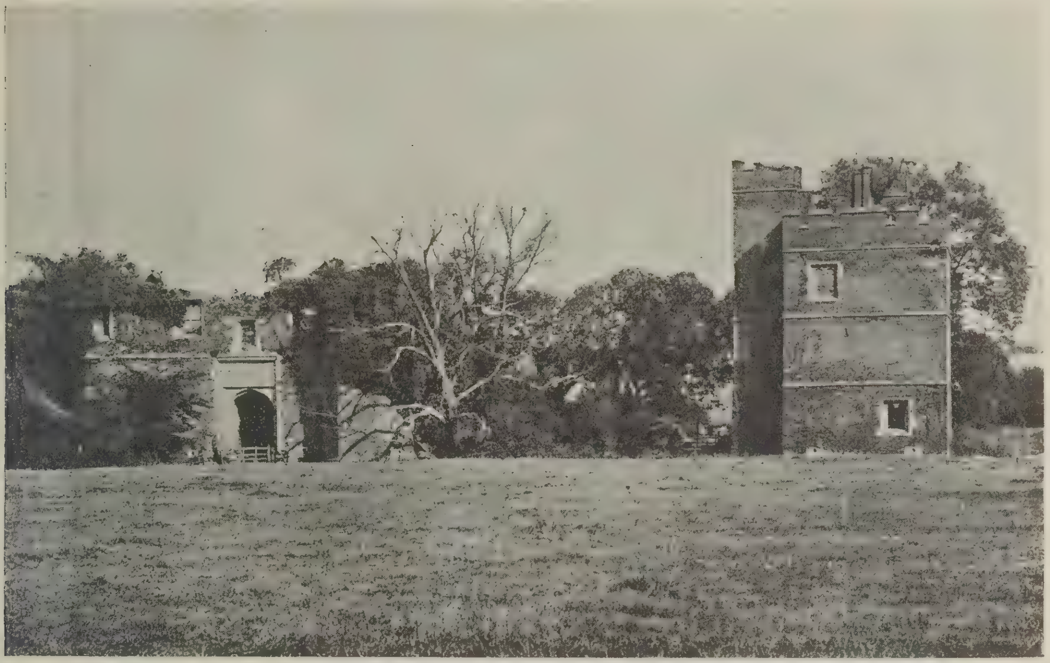
Then an "unknown American" buys the Castle for £2,250 and refuses Sir Francis Trippel's offer of £2,500, cash down, but is willing to accept £10,000, the sort of bargain that speculators in "old masters" are wont to make. Next day the price is reduced to £7,500, but Sir Francis did not snap the bargain. The next stage seems to have been the sale of the mantelpieces at a satisfactory price, and the Castle, without the mantelpieces, is offered to the National Trust for £2,000, but the deal has not come off and is not likely to do so. As Sir Robert Hunter truly said in his letter to the *Times*, "a body like the Trust has a double duty to the public—to lose no opportunity of putting such buildings beyond danger of destruction, and at the same time to avoid raising their price by ill-considered appeals for their purchase."

In our view the Trust has deserved the respect and confidence of the public for declining to make use of Sir Francis Trippel's offer of a loan of £5,000, which, with their assistance, might have been extracted from the pockets of a generous public and transferred to the owners of a property whose market value, before the "old-master" game was initiated, was £1,125. It is high time that statutory protection of our ancient monuments from the "old-master" market was provided, and if the unsavoury history of Tattershall Castle hastens that provision we need not regret the loss of the mantelpieces.

The news that the Society of Antiquaries has been able to make satisfactory arrangements with the owner, Lord Barnard, for commencing the excavation next spring of Uriconium or Wroxeter is very satisfactory and awakens hopes of important discoveries. At the annual meeting of the Shropshire Archæological Society, Mr. C. R. Peers, Secretary of the Society of Antiquaries and Government Inspector of Ancient Monuments, said in the last twenty-three or twenty-four years the Society had thoroughly investigated the whole site of the Roman city of Silchester, and at present they were engaged in investigating the site of Old Sarum. Now they proposed to come to Shrewsbury and undertake the excavations at Wroxeter, which was a far more important area than any they had undertaken—than any, he thought he might say, which had been undertaken in Britain, because they must remember that Silchester was a comparatively small country town, and probably at no time could boast any great architectural splendour or wealth. Wroxeter, on the other hand, was nearly twice as big; it had no written history, but it must have been of very considerable importance. It was destroyed all at once in 584 or somewhere about the end of the sixth century, and probably what was there then was to a large extent there still. No serious excavation—with the exception of that very good work done on the basilica and the bath in 1861—had been done at Wroxeter, and the city might not have been disturbed since 600. At any rate, the fact remained that it was a magnificent field. This was the most important piece of systematic Roman excavation ever done in Britain, and it was worth their while to do everything they could to make it a success at the beginning. If it started well, and there were valuable finds, he had no doubt sufficient income would be assured.

The erection of roods or screens has usually been unfavourably regarded by Consistory Courts, and the judgment of Chancellor Prescott at the Carlisle Consistory Court on an application for a faculty to erect a rood in Urswick Church fairly sets out the view that is commonly taken. The Chancellor, in giving judgment, said: This is the first time, so far as I am aware, that application has been made to this Court to erect a so-called rood in a parish church of this diocese; and the particular point on which emphasis has been laid is that it is not liable now in the views of the parishioners to "superstitious reverence." I therefore think it is necessary to make some remark on the subject. This matter was argued and elaborate judgments given in the Arches Court and by the Lord Chancellor and the Court of Appeal in the case of Ridsdale *v.* Clifton. I am not going to quote those judgments in full, but will only refer to one point. It is important to note that this judgment was given after the case of Phillpotts *v.* Boyd, when the erection of the Exeter reredos, which contained sculptured images, was allowed on the ground that it was for the purpose of decoration only and not in danger of being abused, nor was any superstitious reverence likely to be paid to any of the figures on it. Notwithstanding this, their Lordships refused to grant a faculty for a crucifix placed on a screen separating the chancel from the church. They concurred in these words of the learned Judge in the Court below:—"It is no doubt easy to say, what proof is there of danger of idolatry now? What facts are there to point to a probability of abuse? But when the Court is dealing with a well-known sacred object—an object enjoined and put up by authority in all the churches of England before the Reformation, in a particular part of the church and for the particular purpose of adoration, when the Court finds that the same object, both in the Church and out of it, is still worshipped by those who adhere to the unreformed Romish faith, and when it is told that now, after a lapse of three hundred years, it is suddenly proposed to set up again the same object, in the same part of the church, as an architectural ornament only, it is hard not to distrust the uses to which it may come to be put, or escape the apprehension that what begins in decoration may end in idolatry. If this apprehension is a just and reasonable one, then there existed that likelihood and danger of 'superstitious reverence.' Is it really so absurd to imagine that in the present day the worship of lifeless images and figures, not as idols, perhaps, but as aids to devotion, should again prevail as in old times? What I am here discussing, I must again repeat, is not the belief in an idol of wood and stone, but the practice of involving in devotional exercises outward and visible forms as inculcated in the devotional books of the Roman Catholic creed." So much for the learned Judge. It may, I think, be assumed that the danger, if any, has not diminished during the years since that judgment was pronounced. In mediæval days, the chancel screen was the distinct division between the clergy and the worshippers. This division has now been done away with, and the people now look to the East end and the Holy Table for sacred emblems rather than the top of the chancel screen. I think that is the argument against putting any of these emblems in that position. Often when objects are brought before this Court which are illegal, or which sail very near the wind, I am told that they are gifts. I know the difficulty in which the incumbent and the parishioners are often put when gifts are offered by those who have been benefactors in other respects, and it is well that there is a Court to which an appeal can be made. I am quite aware, whatever may be the case with regard to the parishioners of Urswick, that there are parishioners in many parish churches who would consider the putting up of such objects as appear in these plans to be most offensive, and would in some cases drive them away from their parish church. I have, therefore, come to the conclusion that the faculty for putting up this rood beam and these figures cannot be granted and will not be granted.

The managers of the Sheffield Technical School of Art appear to have come to a wise decision in their proposal to arrange at the school classes dealing with decorative design, with instruction in architecture of a kind essential for all students other than architects—that is, in style, proportion, and moulding, which classes they considered would "meet a pressing need in connection with the advanced curriculum of the school without in any way trenching upon the work carried on at the University." The general instruction of the educated public in architecture to the extent of comprehension of its meaning, its purpose, and its achievements, is highly desirable, but the extent of this instruction falls far short of that necessary for the professional architect. Some intelligent appreciation of architecture is necessary for a liberal education,



KIRBY CASTLE.—VIEW FROM THE FRONT.

and this can be very well imparted by schools of art and polytechnics, but the adequate training of architects is beyond the powers of such institutions.

An extraordinary general meeting of the Manchester Royal Exchange, Ltd., has resolved: "That the directors are hereby requested to proceed with the elaboration of a scheme for the extension of the Royal Exchange on the side of Bank Street, at an estimated cost of £500,000, and with that object to prepare a Bill to be promoted in Parliament in the session of 1912." Thus the subscribers have determined not to fall in with the views of some members of the Corporation, who wished the Exchange removed to the old Infirmary site at Piccadilly.

BRICK-BUILT CASTLES OF LEICESTERSHIRE.

KIRBY CASTLE.

According to Throsby the historian, Kirby Castle was built by William Hastings, a descendant of Sir Ralph Hastings. Members of the Hastings family filled prominent positions in our history from very early times after the Conquest. At a Parliament held at Nottingham permission was given by Edward IV. to Lord Hastings to build the castle and enclose and empark 2,000 acres of land and wood with the appurtenance of their demesne lands, there and elsewhere in the county of Leicester.

This castle is one of the first fortified buildings in the county of brick, and in its time must have been a very handsome structure. It was not completed to Lord Hastings' plans, his sudden and tragic death a few years later preventing this. Lord Hastings was beheaded in 1483 by order of Richard Duke of Gloucester, owing to his fidelity to the claim and right of the sons of Edward IV. to the throne, and because he would not further Richard's treacherous designs. Lord Hastings by his will devised the manor and park of Kirby to his wife, Katharine, and also directed one thousand priests to have sixpence each to say a thousand Placebos and Diriges, and a thousand masses for his soul.

Jane Shore lived for a time here, having left her husband for the king, and after his death the Lord Chamberlain took her back to London, where she remained for the rest of her life.

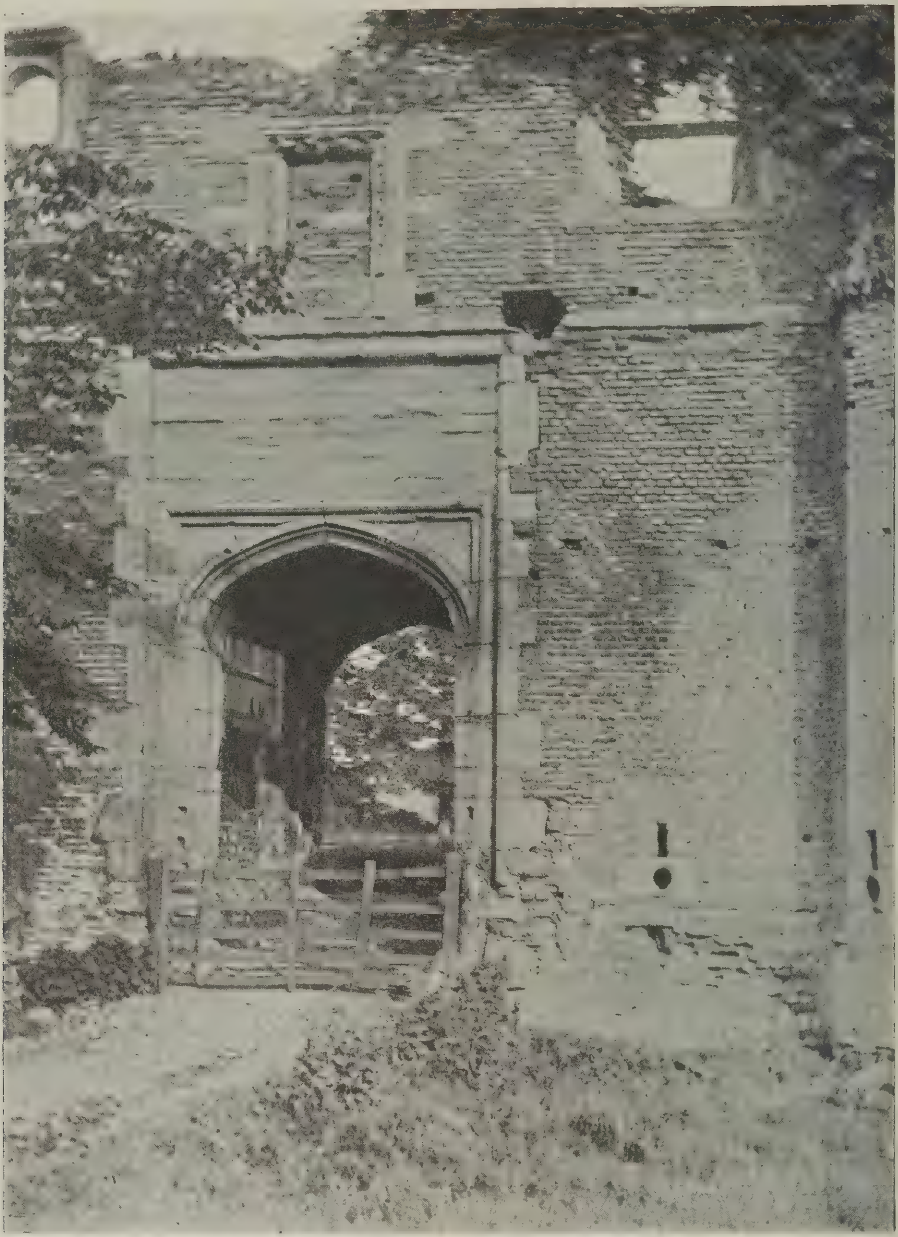
The remains of this castle are brick cemented with strong lime mortar (some of which remains undecayed, where the bricks have entirely perished). The gateways, front and back, doorways and window frames are of a fine, soft, but durable white limestone, procured from the Dane Hills, about two miles distant from the castle.

Two noble towers remain tolerably perfect in spite of wind and weather; one on each side of the principal entrance, which is under an obtuse arch, composed of massive voussoirs with their joints going right through to the brickwork. The mouldings are clear cut, with sharp arrisses, dying away upon the outer face. Within the gateway, under the outermost arch, there is an open space or perforation up the wall, probably to admit the descent of a portcullis. This entrance was secured formerly by two pairs of double gates—one pair external and one pair internal; the hooks upon which they turned are nearly 10 inches in circumference. There is only one pair of gates left, and they are in a very broken condition; the framework only remaining, revealing large bolts and framing three inches thick. One man's whole strength is required to move one of these crude and ponderous gates, the weight of which must have been enormous at the time when the castle was inhabited and the gates had their full number of iron bars and struts.

The entrance hall is not very large, but is impressive notwithstanding, with smaller doorways on each side which admitted the men-at-arms to their quarters; these apartments were surrounded by loop-holes where men were no doubt stationed to keep watch and to discharge their arrows. These loopholes widen internally the whole thickness of the wall, and are bordered with the aforementioned white stone; some of the circular ones are very near the edge of the water in the moat, so that, in the case of anyone trying to swim the same he would soon be seen and transfixed by an arrow from one of the watchers.

The guard-rooms, of which there are two, one on each side of the gateway, are about 15 feet high and roofed with a waggon vault in solid brickwork. From both the guard-rooms there is a very low arched doorway to each tower, and from there another door even lower than the last, with a flight of steps to the dungeons, which are small square chambers about five feet square, lighted by narrow slits in the brickwork. The walls are five feet thick, of solid brickwork, with a hole in each to the moat; this being the only method of getting rid of refuse and sewage matter. No vestige of plaster or wall coverings is perceptible, but bare walls and floor of brick, and vaulted ceilings of the same material, eight feet high. Each tower contains dungeons, with a guard chamber allotted to each. Arches are used everywhere; even below the ground the builders preferred to make the foundations more than four times the thickness of the wall in brickwork, with arches at intervals of every two feet rather than employ concrete to distribute the weight.

On returning from the dungeons to the guard-room and back to the entrance hall, the ceiling of which has crumbled away, the visitor can view from the ground floor the banqueting hall above him, to which access may be gained by mounting one of the spiral staircases at the back of the castle. The photograph shows the entrance to one of these staircases; the arched doorway is constructed in stone with the same type of arch and mouldings as the main or entrance



KIRBY CASTLE.—MAIN GATEWAY.

gateway. The smaller doorways are not in such good preservation as the main gateway, owing to the wind and weather being fiercer and stronger on the back than the front. It will be observed from the photograph that there is an arched recess under the stairs which might have been used as a store of some kind. The stairs are much worn and very dark owing to the insufficient light through the small windows, which are about six inches wide and set in very deep reveals.

There are no stone dressings or sills to the smaller windows, nor is it probable that glass was used, as there is no indication or indentation for bars or supports. The brickwork over the stairway was constructed with neatness and skill, and with good regard for bonding, each brick being cut to form the winding or corkscrew form, which winds round and round until the top is reached.

After ascending about fifteen feet of stairs the entrance to the banqueting hall is reached; the brickwork here shows signs of better workmanship than the exterior, having thinner joints and bricks of finer texture, with less burrs and lumps in them. All the bricks at that time were hand-made and were longer and thinner than the bricks in use to-day. The hall had two fireplaces, one at each end, spanned by elliptical arches of six feet span. The flues do not decrease in length and breadth till the battlements are reached, where they terminate in octagonal chimneys of slender proportions. There is no doubt that the hall was vaulted by a segmental or waggon vault. Vestiges of plaster still exist about one inch in thickness, made of very coarse material. The floor was of brick, most likely strewed with straw or reeds from the moat, to take away the cold damp look which is always perceptible or felt on a plain brick floor.

There are four entrances to the hall, all spanned by somewhat low arches, two of which lead to the towers, where guards were placed to keep watch. On entering one of these towers there is another doorway facing you, with a flight of four steps terminating in a landing. After ascending these the sleeping apartments are to be seen, but there is no sufficient evidence of their number. The doors were very heavy, as the hooks upon which they swung were made of stout iron, bedded into the stone dressings and run or caulked with lead.

The isolated tower at the west angle formerly consisted of three storeys, surrounded by a flat roof and embattled parapet, with two square towers.

The courtyard was not altogether paved, but the earth was rammed to a hard surface, except to the left tower, where stables and outhouses existed; there brick paving or remains of such can be seen.

Signs of scalding lead are to be seen on the walls, so that possibly some fighting took place there. The walls are ornamented with blue brick diaper work, in crosses, and an effect of solidity is given to the structure by a deep plinth course of stone running round the whole.

There is an underground passage from the castle to St. Bartholomew's Church, which has been bricked up owing to the falling of some masonry and brickwork, thereby entombing two youths who were exploring it. Only one cottage stood when the castle was built, and this is still in good preservation and inhabited.

KIRBY CASTLE.-VIEW FROM BACK.

STAINED-GLASS WINDOW BY MR. R. ANNING BELL.

MR. ROBERT ANNING BELL, R.W.S., is a man of many parts. According to "Who's Who," he is a painter, modeller, designer of stained glass and other decorative work, an occasional contributor to the leading periodicals, and a well-known illustrator of books. A few weeks ago he was appointed Professor of Design and Decorative Art at he Glasgow School of Art.

An opportunity of seeing an interesting example of Mr. Bell's skill in stained glass was afforded us this week at the studio of Mr. A. J. Dix in Gower Street, W. Here was displayed a three-light memorial window to be erected at Abbotsbury Church, Dorset, by the widow of the fifth Earl of Ilchester. The lighting conditions were obviously quite unfair to a work of the kind, and the effect will no doubt be coniderably enhanced when seen *in situ*. Each light is 16 inches wide by 5 feet 6 inches high, and is principally filled by a ingle figure of a saint. The saints are St. Nicholas, St. Catherine, and St. Andrew. One noticeable feature is he absence of architectural accessories as a background. As might be expected, the colouring is conspicuous for its richness. It has been said by some that Mr. Anning Bell is too generous with his colour for stained glass. In this case a pirit of restraint is manifest, although there is only a very mall amount of plain surface. White glass (so-called) is introduced fairly freely to mark the break from one colour to another. It is along each narrow border and above and below the figures that the artist has exercised an almost playful fancy by the introduction of a multiplicity of small pieces each of different broken design, and generally showing a symbol connected with the saint. The possibility of conusion is prevented by the insertion of occasional small pieces of coloured glass without any pattern. The effect is extremely rich, without in any way interfering with the arge figures. Another charming feature is the cherubs supporting the label above each saint.

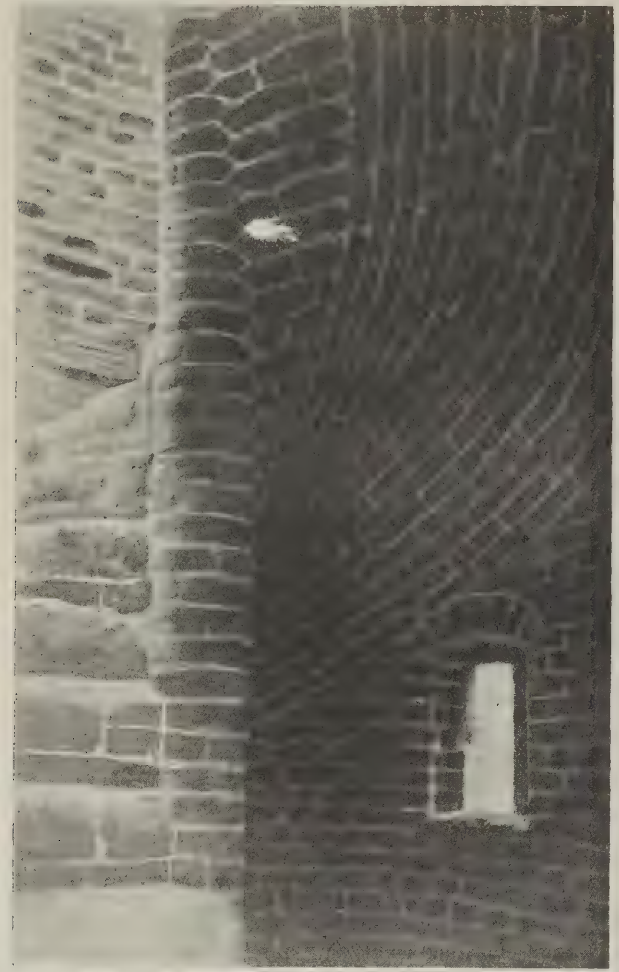
The window head will be filled in by a number of maller pieces showing cherubs' heads and conventional designs.

OLD MASTERS AT THE GRAFTON GALLERIES

IT may seem superfluous to commend, even more to introduce, the National Art-Collections Fund to anyone connected with art in any of its forms. Ever since 1903, when it was founded, this Society has constantly proved its enormous usefulness and consistently demonstrated its worth. Its object is to secure pictures and other works of art for the national collections in London and the provinces, in the same way as has been for many years done or France and Germany by the Société des Amis du Louvre and the Kaiser Friedrich-Museums-Verein. Although the annual subscription is no more than a guinea, the membership is so far only between twelve and thirteen hundred, or less than one-half that of the French society. The resulting income would by itself obviously be of tantalisingly small use in competition with the purses of millionaires and other wealthy public or private buyers. Fortunately the Fund has some very good friends who dip their hands deeply and quickly into their pockets when special appeals for contributions are made for the acquisition of objects of unusual importance when such come into the market. It may easily be understood that owners of important works who are about to part with their possessions often offer them in the first instance to the Fund for the Nation at prices lower than they would accept from any other purchasers. Too often these offers have to be declined through lack of ready money. Nevertheless, in its eight years of activity, the Fund can point to such triumphs as the purchase of the "Rokeby" Venus, by Velasquez, and Holbein's "Duchess of Milan"; a "Nocturne in Blue and Silver," by Whistler, as well as many other examples of modern work. The scope of such a fund must necessarily be almost boundless, more especially in a country like ours where the money at the disposal of the national museums is quite inadequate for successful competition with foreign rivals.

A most excellent method of putting money into the deserving coffers of the Fund was inaugurated last year when an exhibition of Old Masters was held at the Grafton Galleries, Grafton Street, W. The success was immediate. This year a similar exhibition-in-aid has been arranged. Though it can scarcely create the stir which was made by its predecessor, the exhibition is none the less of very high value and certainly deserving of a visit on its own merit quite apart from the worthiness of the cause. The Galleries are in themselves a worthy setting to any gathering of pictures. For the present occasion the hanging has been carried out by Mr. Roger Fry, the secretary. There is in each of the rooms, with the single exception of the End Gallery, a splendid feeling of spaciousness due both to the size of the apartments and to the well-balanced arrangement of the exhibits. One comment may perhaps be permitted concerning the arrangement of the Large Gallery. Here we find, side by side, pictures by Gainsborough, Guardi, Nicholas Poussin, and Romney; Watts, Titian, Tintoretto, Reynolds, XVI. Century Italian School, Romney, XVII. Century Italian School, Rembrandt, and Goya, while the other part of the room is occupied by works of the Venetian and Florentine schools. The curious medley comes as a surprise after the careful grouping of most of the other pictures.

The present exhibition is so catholic in its selection that it is by no means easy to know what works to mention and what to omit. It must certainly contain something for every taste to admire between the two small wood panels by Duccio di Buoninsegna (1255-1319), and the magnificent example of Watts painted in 1857. The Octagonal

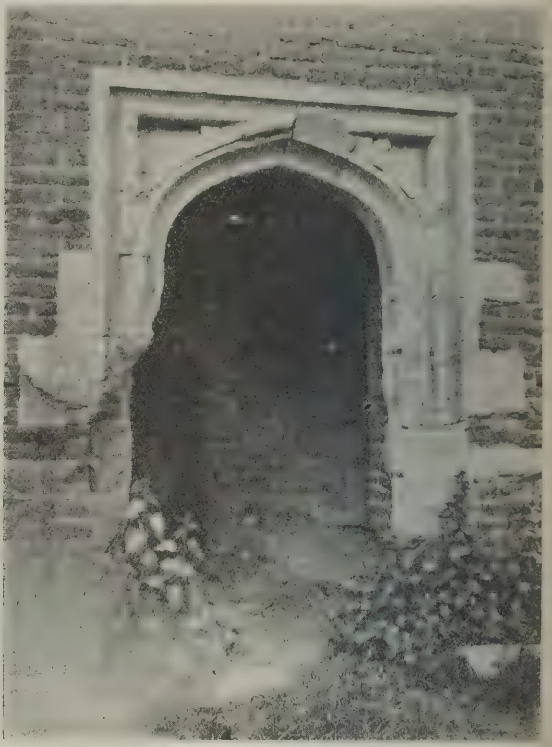


KIRBY CASTLE.—CIRCULAR BRICK STAIR.

Gallery is the first entered, and its interest will keep the visitor for some time. It includes two fine and curiously similar representations of the Madonna and Child, one ascribed to Massaccio and the other by Benozzo Gozzoli, both of fifteenth century Florentine school. How different is the "St. Michael overcoming Satan, with the figure of a kneeling donor," by a Spanish painter of the same century called Bartolommeo Vermejo, whose name has only within the past few years been brought out of obscurity! Here the painter allowed himself full liberty in his colour and action. The detail and the vigour are amazing for so large a work. The "Madonna and Child," by Mantegna, has been described as perhaps the freshest and most charming, as well as the earliest of all his existing works. It is wonderful to think that the delicate polyptych by Bernardo Daddi, dealing with the "Crucifixion," could have been painted nearly six hundred years ago. Its pale flat tints are in extraordinary preservation.

In the next room is a delightful "Holy Family," by Fra Bartolommeo, which is pervaded by a spirit of reverent tenderness, most particularly in the dignified figure of the aged St. Joseph, who sits gazing with loving solicitude on the Infant Christ in Mary's lap as He gives a small red cross to the Infant St. John. Altogether different is the "Portrait of a Lady as Mary Magdalene," which depicts a fascinating lady of Milan of about 1500. It seems curious to skip three and a half centuries in order to next refer to the masterpiece by George F. Watts entitled "Portrait of Mrs. George Cavendish Bentinck and her three children." The life-size figures are grouped with happy skill, and the whole group suggests perfect English motherhood and childhood. Strikingly different is the arrangement adopted by Romney for "The Bosanquet Family," in which the four figures fill a straight line from side to side of the picture. There is all the customary refinement and distinction in Sir Joshua Reynolds's portrait of "Mrs. Bouverie and Mrs. Crewe." Rembrandt is credited with more pictures in this collection than any one other artist, the total number being five. A typical portrait is that supposed to show his father.

There are only two works by Rubens, one a landscape, and the other is of doubtful authorship; the latter shows a forcible portrait of a young ecclesiastic.



KIRBY CASTLE.—ENTRANCE TO CIRCULAR STAIR.

ILLUSTRATIONS.

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.

We give this week illustrations from photographs taken during the visit of the Architectural Association to Loches and the Château du Moulin.

SOUTHWARK FREE LIBRARY.

This branch library which stands upon a site at the corner of Old and New Kent Roads, presented to the borough of Southwark by Lord Llangattock and his son, was erected by Messrs. F. & H. F. Higgs from the designs and under the supervision of Mr. Claude Batley, A.R.I.B.A. The design is substantially that which was placed first in the open competition assessed by Mr. A. W. S. Cross, F.R.I.B.A.; the tower and mosaic panels, however, were the outcome of subsequent modifications desired by the Borough Council. The ground floor is devoted to the general reading public, and the first floor to the loan and reference departments. An endeavour has been made to reflect in the building itself the history of the district, which is very rich in incident. The style chosen lends itself very readily to this purpose. Thus the Viking ship weather-vane is in allusion to the siege of London by Cnut when he brought ships up a canal dug in a crescent skirting the south side of Old London Bridge; the staircase bay window is filled with leaded lights commemorating the Chaucer Pilgrims on their way to Canterbury, while the mosaic panels below depict, the one, their start, and the other the feast given to the pilgrim who was judged to have told the best tale; these panels, which, although not suggested in the original design, certainly lend an interesting touch of colour to a corner strikingly lacking in that or any other interest whatever, were designed and executed by Mr. Thomas A. Cook before the erection of the building. Other leaded windows mark the connection of Sir John Fastolf, Gower, Goldsmith, Dickens, Eliza Cook, Coventry Patmore, Ruskin, Harvard, and Mr. Andrew Carnegie (the donor of the library) with the borough, while the Llangattock and Borough arms afford motifs for some of the carvings and, internally, for the moulded plaster cornices, &c. The whole of the joinery, fittings and furnishings were designed specially and executed by the general contractors. The oak is left oiled. On the screens are carved the names of some famous men who in some way or other have come into touch with the borough. Many other references to local interest are embodied in the design. The staircase, balustrade, electric light fittings and other metal work were executed by Messrs. George Wragge, Ltd.

THE ARCHITECTURAL ASSOCIATION.

THE annual general meeting of the Association was held at 18 Tufton Street, Westminster, S.W., on Monday, October 2, Mr. Gerald C. Horsley, F.R.I.B.A., President, in the chair. Round the walls was hung an exhibition of students' work, prize and other drawings.

Mr. Herbert A. Hall, Hon. Secretary, read the names of thirty-six candidates nominated for membership. The President announced the election of Mr. W. L. Clark and Mr. W. A. Whitewright, and the reinstatement of Messrs. A. MacConnell, M. J. Dawson, V. S. Whitaker, and W. S. George. Notice was given of a vacancy on the Council caused by the resignation of Mr. P. W. Lovell, B.A.; the Council will, at the next meeting, suggest a candidate, and under by-law 37 any member may nominate any other candidate.

Prize List.

Mr. Gerald C. Horsley then distributed the prizes and medals gained during session 1910-11 by the following students:—Mr. G. W. Home, A.A. silver medal; Mr. C. F. Butt, Architectural Union Company's prize; Mr. V. J. Durnford, Banister Fletcher Bursar, 1909; Mr. T. F. H. White, Banister Fletcher Bursary and drainage and water supply; Mr. A. G. Shoosmith, Class of Design prize; Mr. H. J. H. Dicksee, history, construction, geometry, physics, and studio prize, first year; Mr. E. C. Davies, freehand drawing, first year; Mr. D. J. Gordon, travelling studentship, second year—end of session test, second year, prize offered by H. P. G. Maule; Mr. E. Kennedy Smith, scholarship, preparatory courses; Mr. J. B. M. Walch, preparatory course, geometry, and European mediæval architecture; Mr. J. A. Hale, master's prize, preparatory course; Mr. A. B. L. Roberts, scholarship, third year; Mr. G. W. Stuart, book prize, third year; Mr. T. F. Ford, master's prize, third year; Mr. H. V. C. Curtis, travelling studentship, fourth year, and master's prize, fourth year; Mr. F. A. Crouch, fourth year book prize; Mr. C. W. Marles, preparatory physics; Mr. C. J. McCausland, preparatory physics; Mr. A. B. Peermahomed, intermediate physics; Mr. G. Fildes, Renaissance architecture, Greek and Roman; Mr. P. H. Bagenal, English architecture; Mr. C. M. Cooper, advanced physics; Mr. G. A. Fortescue, ventilation, lighting and heating, and professional practice; Mr. H. Gresswell, materials.

The following students have been recommended by the External Examiner, Mr. Paul Waterhouse, for the Board of Architectural Education Certificate, which entitles them to exemption from the R.I.B.A. intermediate examination:—Messrs. A. S. G. Butler, F. A. Crouch, G. A. Fortescue, B. P. Gaymer, J. O. B. Hitch, L. D. Martyn, and C. W. Rogers.

The following students have been awarded the Association Two-Years' Course Certificate:—Messrs. H. D. Archer, S. A. Bennett, D. E. Cruickshank, F. G. Detmold, T. W. Dowsett, G. Fildes, D. J. Gordon, W. Harkess, E. J. T. Lutyens, and A. B. Peermahomed.

Mr. Gerald C. Horsley then delivered

The President's Address.

Fellow Members of the Architectural Association,—Before I begin what I may call the more serious part of my address, I would like first of all, as your President for this session, to have a word with you about our Association. The Architectural Association has already travelled far upon the road towards fulfilment of the ideal of its founders. I like to think that that ideal was to inspire in its members a true love of art, rather than a mere desire to be successful business men. This was the aim of a band of young architects, the founders of our Association sixty-four years ago.

As the first President of our Society, the late Professor Robert Kerr, said a few years ago, when speaking of its origin, and the conditions of architectural training at that time, "the time had come for a stirring of dry bones. It was not the seniors, but the juniors themselves who made the demand—that there should be supplied to the inquisitiveness of youth something more up-to-date than all this" (referring to the architectural training of that time). "Why not take the matter in hand for themselves? said young Charles Gray and others. Why not, indeed? said Donaldson and Godwin. So they did it; and the upshot of it has been that, not in London alone, but in other centres of English energy, it has become a first principle in our professional training that the young men shall put their own shoulders to the wheel as an organised body. And well, thoroughly well, has it answered."

So will it ever be. Enthusiasm is with the young.

Here are a few figures in proof of the steady growth of the Association. The present number of members is 1,611. This time last year it was 1,589. Thirty-five years ago it was 668, showing a growth since that time of about 1,000.

The number of students also in the classes from the foundation in 1847 up to some ten years ago, when the schools were placed upon their present basis, was a varying number in proportion to the number of members at the time.

Since 1901, when the present schools were formed, the number of students who have passed through them is about 1,500.

These numbers surely speak well of the work done in furthering the aim and ideal of our Society.

The "Brown Book" states the objects of the Association to be as follows:—"To promote and afford facilities for the study of architecture, and to serve as a medium of friendly communication between the members and others interested in the progress of architecture." It goes on to say that the objects shall, as far as practicable, be carried out by means of papers and discussions, a library, lectures and classes, a school of architecture, prizes and scholarships, visits to works and buildings, periodical publications, and by such other methods as the Council may determine from time to time. A goodly list. The communication between the members fostered by these methods has led to the formation of many valuable friendships, and will lead to a good many more, for the different societies within this Association which encourage informal, but useful, meetings among our members, are all doing as well as we could wish.

The Camera, Sketch and Debate Club, for instance, has thoroughly justified its existence. Last session it held an excellent exhibition of very good sketches and first-rate photographs, and it has had some good debates. I believe to-day it has just returned from a week-end visit to Cambridge. I hope we shall soon see the result of their sketching and photography in another exhibition. I would commend to its members a consideration of the advantages of joining the Architectural Association annual excursion, in lieu of holding a separate outing of their own in the same month.

Owing to the papers which are read and the discussions which follow them at our ordinary meetings, these are social gatherings as well as opportunities for hearing about something we probably knew nothing about before; we have gained greatly by the departure made last year in combining the alternate meetings with the Camera, Sketch and Debate Club. We have had good meetings and animated discussions. I would like to remind you that the papers which are read at our meetings are usually of a most interesting description; they help to widen a man's general knowledge of art, and we hope to see our younger members coming forward and taking part in the discussions.

The library and periodical publications have made great progress in the last few years. A comparison between our present Journal and the old Architectural Association Notes must be very satisfactory to the Editors of the former, and emphasises their admirable work.

The "Association Sketch Book" has, I rejoice to say—as an old past member of its committee and an old contributor I regard it with particular affection—a new lease of life. Undoubtedly the most useful and best book of its kind, it has at last been discovered by many who previously have closed their eyes to its merits. In consequence of this, it is becoming valued, as it ought to be. I hope, as members of the Association, you will support it by lending your best drawings of old work for publication, and by subscribing the small sum necessary to have the volumes supplied to you.

We have had good competitions for the prizes and scholarships. I am glad to tell you of an alteration which has been made in the conditions of the Travelling Studentship. Formerly this was reserved for those members only who had passed through the School of Design; now it is open to the competition of any member who is under twenty-six years of age. Page 110 of the "Brown Book" will show you that this prize is now more than ever well worth your notice.

With much pleasure I wish to call your attention to the exceedingly good provision which has been made for the athletic side of the Association. Thanks to the untiring efforts of Mr. Alan Potter and other members of the committee, a very good ground has been secured and prepared for football, cricket, and hockey.

On a memorably fine and perfect afternoon last summer the ground was opened with much graciousness by Lady Webb, to the great satisfaction of all present. Now, I need not say much more about the Athletic Club. It can take good care of itself; but I will say this—we ought all to support it. We have all to put in much intellectual work nowadays, and to keep fit intellectually we must keep fit bodily, and the Athletic Club will help us in a particularly delightful way. Do not overlook in your "Brown Book" the page which gives you information concerning the well-known 28th Battalion of the London Regiment, the "Artists." Fortunately, for the good of us all as citizens of this Empire, it is no longer necessary to tell the public school man, on taking up his own citizenship, that it is his duty, if he can pass the necessary tests, to join the Territorial force. The splendid work done by the O.T.C. in the schools of England has spread that knowledge wide. I consider we ought in this Association to either supply a company to the "Artists" from the fine material we have here, or to make notable additions every year to those companies already existing which are mainly recruited from architects. As one who did his few years in the regiment many years ago now, I can testify to the good of the work and the pleasure of the comradeship. In view of the duty to our country in this respect, there ought to be an effort made to give facilities to those students who have to complete their drills.

The large subject of the School of Architecture I deal with more fully presently, but this I will say—that after many years of voluntary and disinterested endeavour the Association has a school which is second to none in this country. When I consider its well-thought-out scheme and many advantages, I am forced to think of the more simple conditions which obtained when I and my contemporaries left school in order to study architecture, some thirty years ago. Perhaps you will not think me too prolix, or too much like the old man whom you know "will be talking," if I recall my own beginnings, and compare them with your own. It was my good fortune in 1879 to be articled for three years to Mr. R. Norman Shaw. You can guess they were happy years. There was much to learn, much to inspire. But at that time there was no organised system of education beyond the term of pupilage, except the instruction given in the evening at the Royal Academy Schools, in some Art Schools, and the voluntary evening classes of this Association. We (I speak of myself and my contemporaries), or most of us, joined the Royal Academy Schools during the term of our pupilage on submitting drawings to prove our fitness for admittance, and worked there in the evenings. On looking back, I think the chief value of that school work was the competitive work for the prizes. It was a good exercise, and lasted some time, for the Academy studentship alone lasted some six years. Travel abroad, working as an assistant, and competing for the Royal Institute prizes filled up our time till, some eight or nine years after the first days of pupilage, we began to practice.

And now, having spoken of those subjects which I wished first of all to mention to you, I pass on to speak more particularly of the School of Architecture and the objects of our education.

When I was thinking of my address to you to-night it occurred to me that I could not do better than begin it by quoting the following words written by our great King Alfred more than a thousand years ago. These words are:—"Thou knowest that no man may understand any craft, or wield any power, unless he have tools and materials. Every craft has its proper tools." It is true that the king was writing about kingly power, and describing the tools and materials necessary to make that power of a fit and noble kind; still, the quotation, so clear and to the point, as was the way of the great ruler and law-giver, sufficiently describes the aim of this Association, which is to give its members power to do good work by the provision of a thorough system of education.

At the risk of being a little tedious, and repeating to-night what a good many here already know very well, I wish in this address which I have the honour, as your President for this year, to make to you this evening, to refer to the work of the Association, and to the influences which now affect it, and to those further influences which might be brought to bear upon it. Although the risk I have mentioned be present, I am the more emboldened to speak on this theme because we have amongst us several new members, who are fresh to the conditions of life in our Association, and unacquainted with some of the movements influencing the current of art life in this country.

Now, the most important work of the Association is the School of Architecture, the successor of the old voluntary system of education for which the Association was primarily founded. The present method of education consists, as you all know, of a four years' course, divided into two years in the day school, and two years in the evening school, during which latter period the student is articled to an architect in practice. By this means the careful preliminary training in the first two years in this school leads up to the combined office and school training in the succeeding two years, a combination obviously of the utmost value to the student.

The course of instruction is an admirable one so far as it goes; the details and effect of its working are always being most carefully watched by the head master and educational staff, and by the Council of the Association, who frequently meet to confer together. A new development has been inaugurated this year. Professor Beresford Pite, himself an old member and past President, well acquainted with the history and work of the Association, has joined the educational staff as Director of Education in the schools. As a master in the evening school, and as lecturer in both the day and evening schools, he will instruct as well as direct. This is an accession of strength to our system which Mr. Maule and the assistant masters have heartily welcomed, and I think we are entitled to congratulate ourselves upon it, and to hope for a continued healthy growth of our means of education.

In addition to the four years' course to which I have referred, I may here announce that it is intended to form at once an advanced class, or a fifth year's course, for those who are desirous—and I believe there are many such—of pushing their studies further.

Hitherto the four years' course has been founded upon the syllabus put forth by the Board of Architectural Education, and a tradition of sound and careful work has been established in the schools, which is constantly growing and expanding to meet the needs of the day. I am aware that there are those who hold that a four-years' course is sufficient for an architectural student before beginning to practice, and particularly for the man who has been to a university. Though I am strongly of opinion that four years is not enough for the greater number of students, I admit there is a good deal to be said for this period of study in the case of those who have spent three or four years at the university, and who have done well there. Time is of consequence in their case, and the trained minds of students who have been through the university course will learn and absorb more quickly than the minds of those who enter the schools here direct from the public schools. For these last I assume, and I believe rightly, that the four years' course is too short a term of instruction, and I believe that the student who makes up his mind to spend the years between eighteen and twenty-eight in the close study of his art, earning his living, if necessary, meanwhile, as others have done before him, as an assistant to architects in practice, before practising as an independent architect, is more likely to become an accomplished artist than he who begins to practice immediately on the conclusion of his articles. It seems to me that if it were possible to combine the general education of a university with the acquirements of the preliminaries of architectural knowledge for perhaps two years after the student has left his public school, it might be very valuable.

These are matters which I hope may come before the Board of Architectural Education for consideration; for I believe it will become necessary for the advantage of our students generally to bring about a co-ordination of the present opportunities for the advanced student who has completed the four years' course, and who does not wish to immediately set up in practice.

At present these opportunities of study are very varied and, I will add, very interesting. To name only a few, there are our own new fifth year's course—and all our students should, if possible, go through the fifth year's course—and the prizes offered by the Royal Academy of Arts and the Royal Institute of British Architects. To obtain one of these prizes confers deserved honour upon him who gains it, and gives him credentials which help him to gain a good position for himself in some form or another, and which makes for him a real start in his artistic life. Besides this, these prizes give to the students the great opportunity of developing their knowledge by travelling for purposes of study.

There exists, however, the difficulty that, while the competition for the prizes of the Royal Institute of British Architects is open to all *bona-fide* architectural students, in the case of the Royal Academy the competitor must have passed through the full terms of studentship. As an old student of the Royal Academy, and one who has a great respect for its system of training, I can understand that its prizes are intended for its own students. But as one anxious to see a higher development of our general educational system I feel it would greatly assist the student of to-day if he might enter he advanced classes of the Royal Academy upon satisfying xaminers as to his ability, without being obliged to go hrough the whole course. For instance, it would be an dvantage for our students who have obtained their certificates here after several years' study to enter the Royal Academy schools to compete for the Gold Medal and Travelling Studentship, and to reap the advantages of meeting ith students who are studying the sister arts of painting nd sculpture. A goodly number of our students are debarred t the present time from doing this, through having to go hrough a probationary course on entrance, equivalent to the arlier years of the course completed by them here.

The training which a student must undergo who intends o compete for one of these prizes is of great importance to im; while the fact that nearly all of them, such as the oyal Academy Gold Medal and Travelling Studentship, the oane Medallion, the Tite Prize, the Pugin, the Owen ones, and others of the Royal Institute of British Architects, carry with them an obligation upon the successful competitor to travel either in England or abroad for purposes f study, constitutes their great educational value. In my pinion, the education of the advanced student is not complete until he has studied abroad. He may do this by independent travel, or he may join for a time the British school t Athens or the great French school—all admirable courses pursue, and well worthy of your attention and consideration.

Further, in connection with this important part of a udent's career, I would like to mention the probable foundation of a large British school for advanced students in Rome. his possibility inspires the hope of an extension of the pportunities for advanced study of a particularly interesting kind. The development of this scheme may necessitate t some future time such a co-ordination of the means of study which I have alluded as might lead to the formation of a reat National School of Fine Art and the crafts of building in this country, of which our schools would form a cognised part.

The formation of such an advanced school does not presuppose any slavish imitation of the French school, though believe we may learn much from that school.

For instance, we must not forget that the well-organised ears of study of the best French students—those, for ample, who have won the Prix de Rome, and have spent the ur years (which is the condition on winning that prize) in e study of old work in Italy and Greece—have contributed the great achievements of French architects during the st two hundred years. It was, at any rate, this very orough system of training which helped Labrouste to build s library of Ste. Geneviève in Paris and his notable additions to the Bibliothèque National; which helped Duban his building at the Beaux-Arts, and Duc at the Palais de stice. We must recollect that the foremost students "set e pace" all the world over, and inspire their fellows to put rth their best powers. We have here in England artistic rces which, if combined, would, I believe, prevent much ste of energy and power, and would tend to the production finer work of a more national character. The chief rinciple which, in my view, leads to success is that, if you e going to be a distinguished artist, you must first of all a distinguished student. No system of education is of use ich does not bring out and form those qualities which make what we know as "character." As the man is, so will his rk be; it is essential, therefore, for a student to have access the best models, and to be brought into contact with the best d highest thought, both ancient and modern. In this way ll his own character be formed by the true artistic influence ich flows from great men and great work. Carlyle says in true works of art the God-like is rendered visible. If the artist must be creative, and our aim should be to make r students receptive, imaginative, and fruitful in ideas and sign, so that they may become creators of beauty. Our otto is "Design with beauty, build in truth." We might ll add Shakespeare's words, "By knowledge are we lifted to the Gates of Heaven." To our students I would say the motto of your Association become your own motto, and th it in your hearts take full advantage of the education ered to you here in both schools, remembering that the ning school is the complement of the day school. Make it aim to keep yourselves ever open to the artistic influence sincere and truthful study. Robert Louis Stevenson, in of his delightful essays, says that the best artist is not man who keeps his eye fixed on posterity, but the one o loves the practice of his art. And no art can give its author more intense pleasure than the mistress one to which you are devoted. Beauty in architecture has many manifestations; you may have it in the exquisitely delicate and refined detail, or in that which is splendidly bold; in the stately and dignified plan and elevation; in the fine lines of the column; or in the sense of superb scale. We have in England to struggle against the small and petty detail which disfigures building after building to-day. We need to absorb into our minds the principles of broad and fine work. Look, for instance, at a fine capital of a pilaster of Francis the First's time; the sweep of the line of the horns or volutes, as vigorous as the clean line of a rapier, the flat relief of the intermediate carving as delicate as the damascene pattern on its blade.

(To be concluded.)

SOCIETY OF ARTS' ADELPHI PREMISES.

IN the latest number of the "Journal of the Royal Society of Arts" an interesting account appears from the pen of Sir Henry Trueman Wood, M.A., the Secretary, of the various offices rented by the Society since 1755. During the four following years their tenancy scarcely averaged a year at each place. But in 1759 they rented premises opposite Beaufort Buildings in the Strand. In 1770, the lease of the Society's premises having nearly expired, and the accommodation being again found insufficient, it was decided to advertise for new premises, and accordingly an announcement was inserted in some of the daily papers inviting any person who had proposals to make for the accommodation of the Society to communicate with the secretary.

The result of this advertisement was that the Brothers Adam, who were then occupied with their scheme for the construction of the Adelphi, offered to include in that scheme a suitable house for the Society's purposes.

The history of the Adelphi has often been written. The site was long occupied by the historic buildings of Durham House, the residence of the Prince-Bishops of the northern See. The house and grounds originally occupied the area between Adam Street and Buckingham Street, from the Strand to the river. The New Exchange was built in 1608 by Lord Salisbury on the site of the Durham House stables, and extended from George Court to what used to be Durham Yard, but is now Durham House Street. It thus included the site of Coutts's old Bank. It was pulled down in 1737, when shops and houses were erected along the present line of the Strand. In the space between these buildings and the river, where old Durham House once stood, fronting the river, with its gardens reaching to the Strand, were "a number of small low-lying houses, coal-sheds, and lay-stalls, washed by the muddy waters of the Thames." The ground sloped down from the Strand level to the brink of the river, which must have been, at high water, somewhere about the inner edge of the Embankment Gardens.

On this slope the Brothers Adam (Robert, William, James and John) proposed to build a great terrace, level with the Strand, the idea being taken from the arched terrace or gallery in the Palace of Diocletian at Spalato, which Robert Adam studied with great care, and described in a monumental folio.* The ground was in the possession of the spendthrift Duke of St. Albans, or rather of his trustees. By the year 1642 the estate had finally passed out of the possession of the Bishops of Durham, and under the provisions of an Act of Parliament it became the property of the Earl of Pembroke and Montgomery, a rent-charge only of £200 a year being reserved to the See of Durham. This rent-charge, it may be interesting to mention, is still paid by the present owner to the Ecclesiastical Commissioners. In 1677 the estate was sold by the Earl of Pembroke to Sir Thomas Monpesson, and in 1716 it was again sold by the representatives of Sir Thomas Monpesson to the trustees of the will of Sir John Werden, whose daughter Lucy married Charles, the second Duke of St. Albans. Their son George, the third Duke, brought the estate into settlement, and in 1767 a private Act of Parliament was passed for vesting part of his estates in trustees for the purpose of raising money to pay his debts.

These trustees, Lord Charles Spencer and Sir Philip Musgrove, in 1768 granted a lease to the Brothers Adam for ninety-nine years at a rent of £1,200 a year. It has seemed worth while to record these details because they have never been accurately stated in previous accounts of the Adelphi.

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* "Ruins of the Palace of the Emperor Diocletian at Spalato in Dalmatia," by R. Adam, F.R.S., F.S.A., 1764.

The design proposed by the Brothers Adam was duly carried into effect, the requisite height on the river side being obtained by the construction of tiers of superimposed arches. Some of these arches formed public thoroughfares, and later gained an unenviable reputation on account of their nocturnal frequenters. Others were let as storehouses; at one time a number of cows were stabled in some of the arches, and supplied milk to a large part of the West End. Others, again, served as cellars for the houses built on the substructure. The Society's house has two storeys of cellars below the south-western part of the building, while the foundations of the north-east corner are in the original ground. The whole work has undergone a certain amount of repair, a good deal of strengthening and reconstruction having been carried out about the time of the termination of the original lease, when the Thames Embankment was made (1862-1870); but it seems now as sound as when it was first built. The view of the Adelphi in a contemporary print justifies Horace Walpole's criticism (quoted by Mr. Wheatley) that the Adelphi buildings resembled "warehouses laced down the seams, like a soldier's trull in a regimental old coat." There are still two or three houses in the Adelphi which preserve this old form of decoration—long vertical mouldings extending from the ground to the uppermost storey.

The work, commenced in July 1768, was practically completed in about six years, but before it was finished the Adams were in financial difficulties. In the course of their operations they encroached on the foreshore of the Thames, and thereby involved themselves in a dispute with the Corporation, their difficulties being increased by the political circumstances of the time, as the Corporation were strongly Wilkesite, while the Adams enjoyed Court favour. Eventually they succeeded in obtaining an Act of Parliament to authorise their proceedings. In this they were assisted by their patron, the Earl of Bute. Their pecuniary difficulties were set right by means of a second Act, which empowered them to organise a lottery, the chief prizes in which were the houses then in course of building on the estate. In many cases the prize-winners sold their rights, and thus the subleases became the property of various owners. Their tenures expired at the termination of the principal lease in 1867, long before which time (in 1787) the property had come into the possession of the Drummond family. George, the third Duke of St. Albans, had no son, and was succeeded as fourth Duke by George Beauclerk, the grandson of Lord William Beauclerk, the second son of the first Duke, who had married (in 1744) Charlotte, the other daughter of Sir John Werden above mentioned. Lord William Beauclerk's daughter Charlotte married John Drummond, the son and successor of the Hon. Andrew Drummond, the founder of Drummond's Bank, and to her the Aldelphi estate was devised by her nephew, the fourth Duke. From her son George the estate passed to his son, his grandson, and his great-grandson, George James Drummond, the present owner of the estate and the Society's landlord.

John Drummond and his cousin Robert were among the earliest members of the Society, and the connection of the family with the Society has since continued.

Negotiations, the progress of which is described, though not very fully, in the old Minute-books of the Society, went on for some time, and eventually the Adams undertook to build a house such as was required for a premium of £1,170, and a rent which was finally settled at £200 a year. The plans, after much discussion, were finally approved, the foundation-stone was laid by Lord Romney in 1772, and the Society entered into possession in 1774, though the lease only dates from 1775. It was for 91½ years, from Midsummer 1775, ending at Christmas 1866—a quarter before the end of the landlords' lease.

Such was the origin of the historic building in which the Society has carried on its work for 135 years. It really consists of two houses, one of which was intended for the private residence of the secretary. There has always been a communication between the houses on the ground and first floor (as well as in the basement), and recently a third one was constructed on the second floor. Otherwise the two houses are separate and distinct. The last secretary to live on the premises was Sir George Grove.

No structural alterations of any importance seem ever to have been made in it.

In 1774, when the Society was about to move into its new house in the Adelphi, the question of the decoration of the Great Room naturally gave rise to a good deal of discussion. It was determined that it would be desirable to procure "proper historical or allegorical pictures," to be painted by the most eminent artists. Further, it was decided that there ought to be eight historical and two allegorical pictures; that the subjects of the historical pictures should be taken from English history, and that the allegorical pictures should be "emblematick designs relative to the Institution and views of the Society." A proposal was accordingly made to eight artists, that they should paint each a historical picture, and to two others that they should paint allegorical pictures, the conditions being that they should not be paid, but should receive the profits arising from an exhibition of the pictures, to be held for four months. The historical painters were Angelica Kauffman, Sir Joshua Reynolds, West, Cipriani, Dance, Mortimer, Barry, and Wright; the allegorical painters, Romney and Penny. Mr. Valentine Green, the engraver, was requested to communicate with the selected artists, and to report their answer. Unfortunately, the answer—mainly, it appears, owing to Sir Joshua Reynolds—was a refusal. The portraits of the first two Presidents of the Society—Lord Folkestone and Lord Romney—the first by Gainsborough and the second by Sir Joshua—were placed over the two chimney-pieces, and there the matter rested for a while.

Three years afterwards, viz. in 1777, Barry authorised the same Mr. Green—a member of the Society who took a very active interest in its welfare, and who afterwards received a gold medal on that account—to inform the members that one of the Royal Academicians they had applied to was willing to take the whole work upon himself, and to decorate the Great Room "with a series of pictures analogous to the views of the Institution." It was estimated that the canvas, frames, and colours would cost £100, and there was a further expense of £30 for models, which the artist offered to discharge, but which was eventually paid by the Society. The proposal made at one ordinary meeting of the Society was referred to the committee of "Polite Arts." The committee considered and accepted it before it was known who the artist was to be, and thereupon the chairman produced a letter from Barry, stating that the offer was his. Barry was then young and little known, full of confidence in his own powers, and assured that nothing but opportunity was wanting for him to make a reputation. Nor were his objects wholly personal. He was impressed—as well he might be—with the degraded condition of English Art, "fitted for nothing greater than portraits and other low matters, from whence no honour could be derived either to the artist or the country," and he believed that the production of "some great work of historical painting" would refute the assertions of those foreign critics who declared English painters to be incapable of any permanent work, and would also serve as an example to his countrymen. Feeling at once the necessity of the work, and the capacity within himself for executing it, he set himself to do it, without, as it seems considering or caring even how he was to live during all the years so long a task must occupy.

On the whole, his hopes of fame were realised, for such reputation as Barry now possesses rests entirely on the great pictures he painted for the Society. The man himself was of a strange character, his life was by no means happy. An artist of considerable power, his powers were yet not equa to his own estimation of them; and his life, like that of Haydon, a few years later, was embittered by what he considered a lack of appreciation of his deserts.

In 1777 he began the pictures in the Society's meeting room. In 1782, after they were completed, he was appointed Professor of Painting to the Royal Academy. His caree in this office was by no means happy. He seems to have been afflicted with an irritable, cross-grained temper, and this led him into disputes with everybody with whom he came in contact. Finally, he quarrelled with the Roya Academy itself, so that he was expelled from it in 1799. He grumbled at the Society, which seems to have treated him with sufficient liberality, for it had either given him, or assisted him to get by exhibitions a sum amounting altogether to £700 while the members of the Society raised £1,000, and purchased an annuity of £120, but, unfortunately, only a month before his death, under very miserable conditions. His body was placed in the Society's Great Room for a day before it was carried to St. Paul's, to be laid beside that of Reynolds

When Barry began his task he had, it is said, only sixtee shillings in his pocket, and he supported himself while it wa in progress by etching. He applied to patrons, principall members of the Society, for a loan to assist him while h was at work, but it does not appear whether his applications ere successful. The exact date at which the work was ommenced is not stated in the Society's Minutes, but the ictures were well advanced by the recess of 1778, when e key of the Great Room was entrusted to Barry, in order at he might work without interruption; and the work was ntinued until October 1781. During its progress the ociety's meetings were at first held in the Great Room, the ictures being covered up with canvas; but in 1781 the eetings were held in the committee room—*i.e.* the present ouncil room—the Great Room being given up entirely to e artist. In the same year, frames, designed by Barry mself, were procured from Mr. Adrian Maskens, of Comp- n Street, Soho, at the expense of £100 17*s*. These frames e those in which the pictures now are, though they have, course, been regilt since they were first put up.

A suggestion, made by the painter, that some portraits members of the Society should be introduced gave rise considerable discussion, and seems to have exercised the inds of the committee of "Polite Arts" for some time, but entually a selection was made. As soon as the work was ished, a public exhibition of the pictures was held for the inter's benefit. They were shown for two months during '83, and for the same time during 1784. The cost of these o exhibitions was defrayed by the Society, and amounted £174. 6,441 persons attended the first exhibition and 511 the second, among them being Jonas Hanway—the troducer of umbrellas—who was so pleased with the pictures at he showed his gratification by the very practical step of anging the shilling he had paid for admission for a inea as he left. The exhibitions produced £503 12*s*. ngratulations poured in upon the artist, accompanied in ne few cases at least by subscriptions or orders for paintings. it the measure of praise his pictures received was by no eans equal to the artist's estimate of their deserts. In a ter, dated October 1784, to the president and members of e Society, we find him complaining bitterly of this want taste on the part of the public. Sixteen or eighteen thou- nd pounds had, he says, been squandered that year at estminster upon a "Jubilee of hackney'd German musick," an empty hubbub of hundreds of fiddles and drums, which s dissipated in the air as soon as performed." This, too, d been attended by "well-dressed people of the first rank d condition, great Lords and Ladies with white wands, e ribbans, and medals." Meanwhile his pictures, which re to have revolutionised English art, were being neglected the Adelphi.

A full account of the pictures is given in Barry's own rk. The whole series of pictures was intended "to illus- te this great maxim or moral truth—viz. that the obtain- g happiness, as well individual as public, depends on ltivating the human faculties. To prove the truth of this ctrine, the first picture exhibits mankind in a savage te, full of imperfection, inconvenience and misery. The ond represents a Harvest Home, or Thanksgiving to Ceres d Bacchus. The third, The Victors at Olympia. The urth, Navigation, or the Triumph of the Thames. The th, the Distribution of Rewards by the Society. And the th, Elysium, or the State of Final Retribution. Three of se subjects are truly poetical, the others historical."

The height of all the pictures is the same, 11 feet 10 inches. e first, second, fourth, and fifth, being those at the ends the room, are each 15 feet 2 inches long; the third and th, which occupy the north and south sides of the room, each 42 feet long. They all take up the upper portion the wall, leaving a space beneath them of 10 feet 6 inches wn to the ground.

The six pictures did not occupy the whole wall of the m, the spaces over the chimney-pieces at either end being ied by portraits of Lords Romney and Folkestone. It s not appear that Barry's original design included tures for these spaces, but we find him, in 1801, expressing wish that these two portraits should be placed in some er room of the Society, and that he should be allowed execute pictures which might fill the vacant spaces. This was willing to do without charge, and without interruption he business of the Society. The cost of them would not, said, exceed £10 for canvas and stretchers. It may be posed, and, indeed, it appears from the style of the letter, t he was, at that time, perfectly well satisfied with the atment he had received from the Society, for he expresses self as being "both gratified and flattered with the lick reputation of the pictures." Permission was given Barry to carry out his scheme, and it may be presumed that vas upon the receipt of such permission that he prepared two designs which are still preserved amongst his etchings, representing George III. and Queen Caroline. But, although the proposal was at first readily accepted, it seems to have given rise to some difference of opinion, for the then President, the Duke of Norfolk, notified his intention of moving to rescind the resolution of the Society for the removal of the portraits. Under these circumstances Barry at once withdrew his offer, at the same time disclaiming any intention to show disrespect to the memory of the first two Presidents of the Society. He urges very fairly that another position might be found for the pictures, which would be in no way injured, and that his design could then be harmoniously completed. Coming from a man of his temper, it must be allowed that his second letter is most dignified, and in excellent taste. The portraits consequently remained in their places until 1864, when they were removed to make way for the portraits of the Prince Consort and the Queen, by J. C. Horsley, R.A., and W. C. Cope, R.A. These, with the bust of Prince Albert now standing in the ante-room, form the memorial which was provided in 1863 by subscriptions from members of the Society in memory of their President.

ARCHITECTURAL EDUCATION.*

(*Concluded from last week.*)

THE study of materials is primary to the architect, then the study of construction and purpose, followed by such æsthetic considerations as have not been evolved in their progress through an artistic mind. The impressiveness, which is architectural, in the Temple of the Sphinx has its main sources in these three primary streams; they here combine in a building that owes nothing to what is commonly regarded as architectural detail or to æsthetic considerations. Dignity, fitness, and security are expressed alike by the material, construction, and arrangement.

Material, though a constructive element, has however an æsthetic quality if it governs, as it should, the genesis of the detailed form. It imparts the quality of texture, so little understood in English practice. The general tendency here is to confuse it with the decorative values of materials, which lie solely in their superficial colour or polish. The æsthetic value of a building material, however commonplace its nature, is to be expressed by its use and workmanship, forms deriving character from its natural qualities; and without this æsthetic expression of the texture of material the finer effects of architecture cannot be realised. Into the appreciation of building texture costliness or intrinsic beauty, such as that of marbles, veneers, or of colour veinings or contrasts of richness, do not enter; this decorative aspect of building materials has little to do with the essence of architecture, though one of the first among those many accessories conveniently described as "handmaids." The same considerations which govern the decorative painting of interiors apply generally to the use of materials for their colour or superficial value. Though the student of building construction can be safely advised not to concern himself with these for a while, he cannot undertake as an architect the sympathetic study of materials, for the purpose of designing with them, with no other sense of texture than that which recognises the similarity of red Mansfield stone with red brick, and employs them in juxtaposition to express their common red characteristics. A true perception of texture as a constructive and artistic quality will endow the use of our ordinary building materials, whether employed in important and great works or in such humbler things as warehouses, cottages, or even garden walls, with direct interest and beauty. The student may assure himself that if the texture of each material and its related craft is thoroughly comprehended he will have at hand a fountain of simple beauty which will give new vigour to design, and which will, besides, place for him the study of ornament upon a new and vital basis. Pseudo-architectural forms which are lifeless apart from their original purpose and material will be replaced by the new stimulus of seeking to express the possibilities and quality of the modern material in his hands.

Will beauty of form, however, attend upon beautiful building construction? It will be fairly obvious to a generation such as ours, reared into a general sense of architectural fitness by education in the mixed particulars of illogical standards of taste, that it will not be so. As a matter of course, to such any beautiful architectural forms must be derived from some extraneous source and applied to the building, as it would be impossible, for a dilettante, to con-

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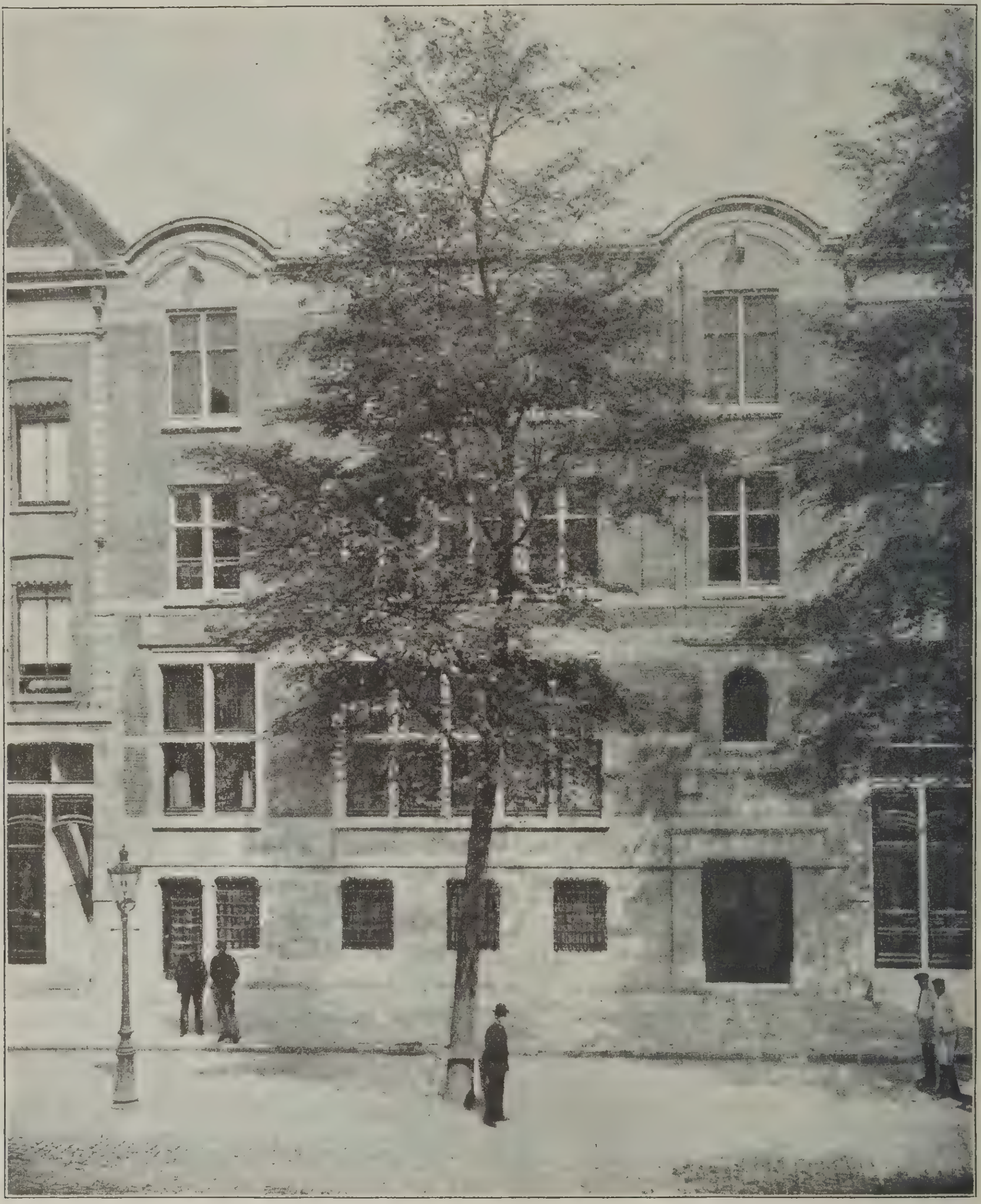
* Professor Beresford Pite's opening address to the A.A. School of Architecture.

MODERN EUROPEAN ARCHITECTURE.

HOLLAND.



[From *Het Huis.*

BRANCH ESTABLISHMENT OF THE BANK OF AMSTERDAM, SARPHATI STREET, AMSTERDAM.

ceive of building construction as otherwise than Philistinic and ugly.

If this prevalent view is correct and to be maintained by education, we must have a new term for beauty in architecture, beautiful architecture and beautiful building not being identical and not necessarily connected. It is a consequence of this prevalent view that building construction books and those on architectural history proper have dealt with apparently different subjects, the former with the matter-of-fact necessities of building, and the latter with the forms which impart architectural beauty. This conclusion, I fear, represents the state of the case in the minds of present-day authorities; the grouping of subjects and books, schemes of architectural examination and of education leading thereto seem to have as their basis the segregation of the arts of design from the practice of construction. The student is expected to sort himself either as a constructor or artist, and nourish his bent accordingly, and in either compartment he is secure from becoming a great architect.

A definition which seeks for intellectual expression in building construction as the secret of true architectural beauty will almost satisfy the inquiry as to the relation of beauty of form to building art. Refinement and adornment follow upon this premise, and it need not be considered that the bare requirements of an inclosing construction is all the building art allows. The Great Pyramid, the Parthenon, the Pantheon, a mediæval vaulted cathedral, or a Renaissance dome each exemplify the operation of trained intellect o constructive problems.

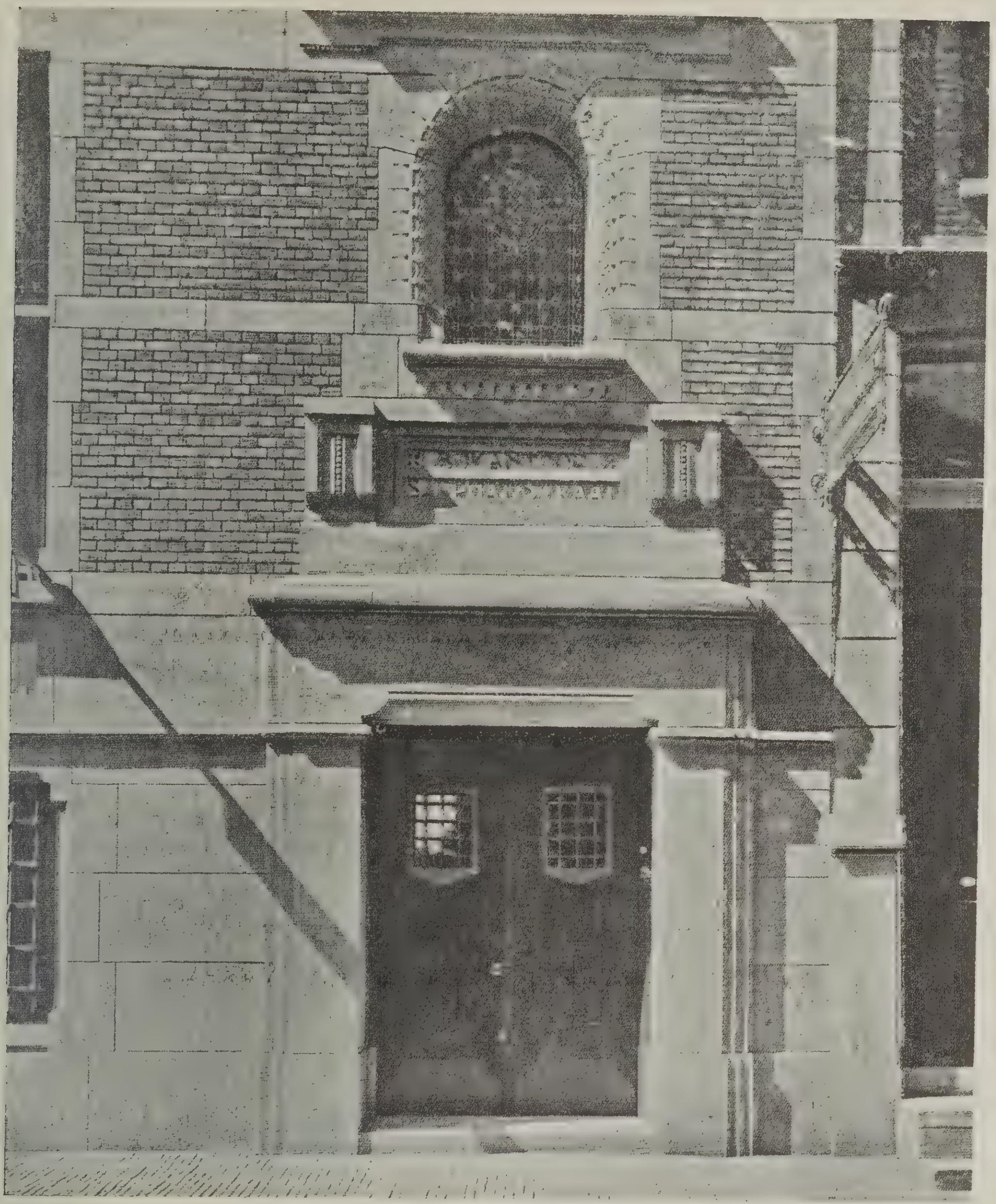
It would be an affectation to suggest that books or lecture dealing practically with the needs of a student of buildin could impart the art of architecture, but it should be claime that the student of construction should discern the element of architectural beauty in that subject, just as in the stud of beautiful buildings they should be attracted to their fundamentally architectural construction.

The purport of this introductory address is fulfilled i pointing out that the studies of the architectural studen should concentrate upon the motives and materials of construction as true sources of varied streams of interest an beauty. Apart from passing fashions, these make architecture permanently effective. Underlying my purpose has bee the hope of linking ancient reference with present practic by a linked study of historical buildings, in order to avoi such a concentration of attention on modern use in construction as would relegate precedent to what would improperly b called the artistic side of the architecture. A very narro view of artistic architecture only would either profess disregard for the modern sense in construction or the ancient i form; the true view equally observes both in each; th artistic architect and the practical builder are not properl separate entities or corporations.

This basis of study is the ideal for the architect; t illustrate and prove it would be easier from the standpoin

MODERN EUROPEAN ARCHITECTURE.

HOLLAND.



[From *Het Huis.*

DETAIL OF ENTRANCE, BRANCH ESTABLISHMENT OF THE BANK OF AMSTERDAM, SARPHATI STREET, AMSTERDAM.

a review of past works of architecture than of the means w at hand of achieving fresh ones, but the present is the st living force with which the student will have to engage, l, modern architecture having nothing wherewith to express rself but building construction, to us the more necessary dy shall have the more abundant comeliness.

Of other forces, of the power of the past, of the aspirations pure artists who were not constructors, we may be led to ak later in dealing with the historical progression of build- experiment.

Mr. H. P. G. Maule proposed a vote of thanks to Professor e for his address. The line which had been taken by fessor Pite entirely coincided with the efforts of their ool, *i.e.* to drive home to students the absolute importance he scientific and æsthetic study of materials and construc- n.

The vote was carried by loud acclamation. Professor Pite his concluding remarks said he did not see why they should have the finest school of architecture in the country. Why uld they not produce better drawings than they did in is? Before that could be realised they would have to carry ir education a great deal further than it had been in the t. He hoped the time would come when there would be admission examination to the A.A. School which would be ut the same standard as that of the R.I.B.A. Intermediate.

LONDON UNIVERSITY EXTENSION LECTURES AT BRITISH MUSEUM.

MR. BANISTER FLETCHER, F.R.I.B.A., gave the first of a course of twenty-four University Extension Lectures on "Ancient Architecture" at the British Museum last Tuesday.

He first dealt with the nature of the lectures to be given under the auspices of the University of London during the coming winter, saying that he would trace the evolution of ancient architecture in Egypt, Assyria, Greece, Rome, and Byzantium on broad lines from a popular point of view.

Architecture, the lecturer explained, was the visible exponent of civilisation embracing the other arts, and all present-day buildings were founded upon old art suited to modern needs. The study of architecture was thus necessary to architects, craftsmen, and art students, and further, it would be difficult to find anyone to whom a knowledge of the subject would not be beneficial. The author, journalist, photographer, and antiquary all required a knowledge of the evolution of the successive periods of architecture in order to help them in their work. The teaching profession now also endeavours to make history interesting by referring to the dwellings and temples constructed by the different peoples to suit their social and political requirements.

A knowledge of architectural history also added much to the enjoyment and benefit of travel which is so popular in these days of quick and easy transit, for it would enable travellers to take an intelligent interest in the buildings and monuments they saw, from which the history of the past could be gleaned. By the study of the most beautiful buildings which had been erected in past ages, an improvement in the architecture of our own country would assuredly result.

The lectures are to be illustrated by some twelve hundred views, the object being to transport students, as it were, to the actual sites, and so familiarise them with the principal buildings, so that during the twenty-four hours thus spent they would be enabled to study what would require in actual travel at least as many months.

Mr. Fletcher next gave a short illustrated review of ancient architecture in order to show the different types of buildings, and referred to the various influences—geographical, geological, climatic, religious, social, and political and historical—which aided in their evolution. He mentioned the world famous Sphinx—a sentinel of the past—and the massive temples and tombs of the Egyptians, the palaces of the Assyrians, the temples of the Greeks, *e.g.*, the Parthenon and the Erechtheion, and their open air theatres, the great buildings of the Romans, including the Baths of Caracalla, and stupendous Colosseum at Rome, the arches of triumph, and the dwellings at Pompeii, the Congregational Churches of the Early Christians, and the peculiar types of buildings erected under the influence of Byzantium, the lecturer pointing out the peculiarity of structure and design in each case. These buildings were shown by means of beautiful slides, making it quite easy to follow in detail the explanations.

Obviously, the British Museum, which contains the world's richest collection of ancient fragments of art, is an ideal place for such a course of lectures, because they can be referred to in the visiting class which is held after each lecture, thus enabling students to follow the historical sequence by looking at actual examples.

The lectures are delivered on Tuesday afternoons at 4.30, in the Assyrian Saloon. The subject of the next lecture will be "Egyptian Architecture." All particulars can be obtained from Miss Gaudet, the hon. secretary of the course, 120 Cheyne Walk, Chelsea, S.W.

VICTORIA AND ALBERT MUSEUM LONDON UNIVERSITY EXTENSION LECTURES.

Mr. BANISTER FLETCHER gave on Monday last the first of a course of twenty-four University Extension lectures on "Renaissance Architecture," under the auspices of the University of London, at the Victoria and Albert Museum, South Kensington, S.W.

He explained that he would deal with architectural history from a popular point of view, and trace its evolution in the countries of Europe. He referred to the history of architecture as a visible exponent of civilisation uniting and embracing the other arts, and pointed out that all modern design was founded upon old art, but altered in order to conform to existing conditions. A knowledge of architecture is necessary to architects, craftsmen, and art students, and authors also require a knowledge of it for the setting of an historical novel, because a mere story about people without reference to the buildings in which they lived would remain dull and uninteresting. The antiquary and the connoisseur should also be interested, for the fascination of collecting is much increased by a knowledge of the dates and periods of architecture. The teaching profession is beginning to realise that to make history interesting the students should be shown the type of buildings in which our ancestors lived and worshipped.

A knowledge of architectural history was indispensable to all who travelled, for to travel without such a knowledge was like having a book in front of one without the ability to read it.

Some 1,200 views of Renaissance buildings would be shown, the object being to transport students to the actual sites, and so familiarise them with the buildings in the different countries of Europe—this should prove valuable alike to those who had, or had not, the time and means to travel.

Mr. Fletcher next gave a short illustrated résumé of ancient and mediæval architecture, in order to show the evolution of architectural forms from the earliest times.

He then dealt with some of the influences at work during the Renaissance period; the writings of Dante, Petrarch, and Boccaccio, the newly discovered MSS. of the classic authors, the fall of Constantinople, the three great inventions—gunpowder, the mariners' compass, and printing—which helped to form a new spirit of inquiry, leading in some countries to the Reformation.

Renaissance architecture could be defined as the architecure of Western Europe, which sprung up on the decline of Gothic architecture in the fifteenth century A.D., and lasted till the present time. It started at Florence early in the fifteenth century, and although it meant the re-birth or revival of Roman architecture, yet the influence of Gothic art was apparent, and it was wrong to say that it was merely a copying of Roman art. From Florence the new style spread to the other countries of Europe, in each of which, however a new version was given to it owing to local influences, such as climate, material, or historical events and the traditions of styles previously in vogue.

The lecturer then proceeded to show a number of views o Renaissance buildings in France, Germany, Belgium, Holland, Spain, and England, indicating their peculiar features In conclusion, the lecturer said that he would endeavour t introduce the atmosphere of the Renaissance period into the lectures, so as to form a connection between history and architecture, and hoped that at the end of the course they would appreciate old buildings as they would be able to study their life history, and understand how they had been raised An improvement in English architecture would undoubtedly be brought about by the study of the most beautiful example of past styles.

The Museum contains a remarkable collection of Renaissance architecture which will be studied in the visiting clas held in connection with each lecture, and this systemati study should make the Museum more useful to the public.

The lectures are given on Monday afternoons at 5 P.M., i the Lecture Theatre of the Victoria and Albert Museum South Kensington, S.W. The next lecture will be a illustrated "Comparative Analysis of Mediæval and Renaissance Architecture."

Particulars of the course can be obtained from Mis Gaudet, the hon. secretary, 120 Cheyne Walk, Chelsea, S.W

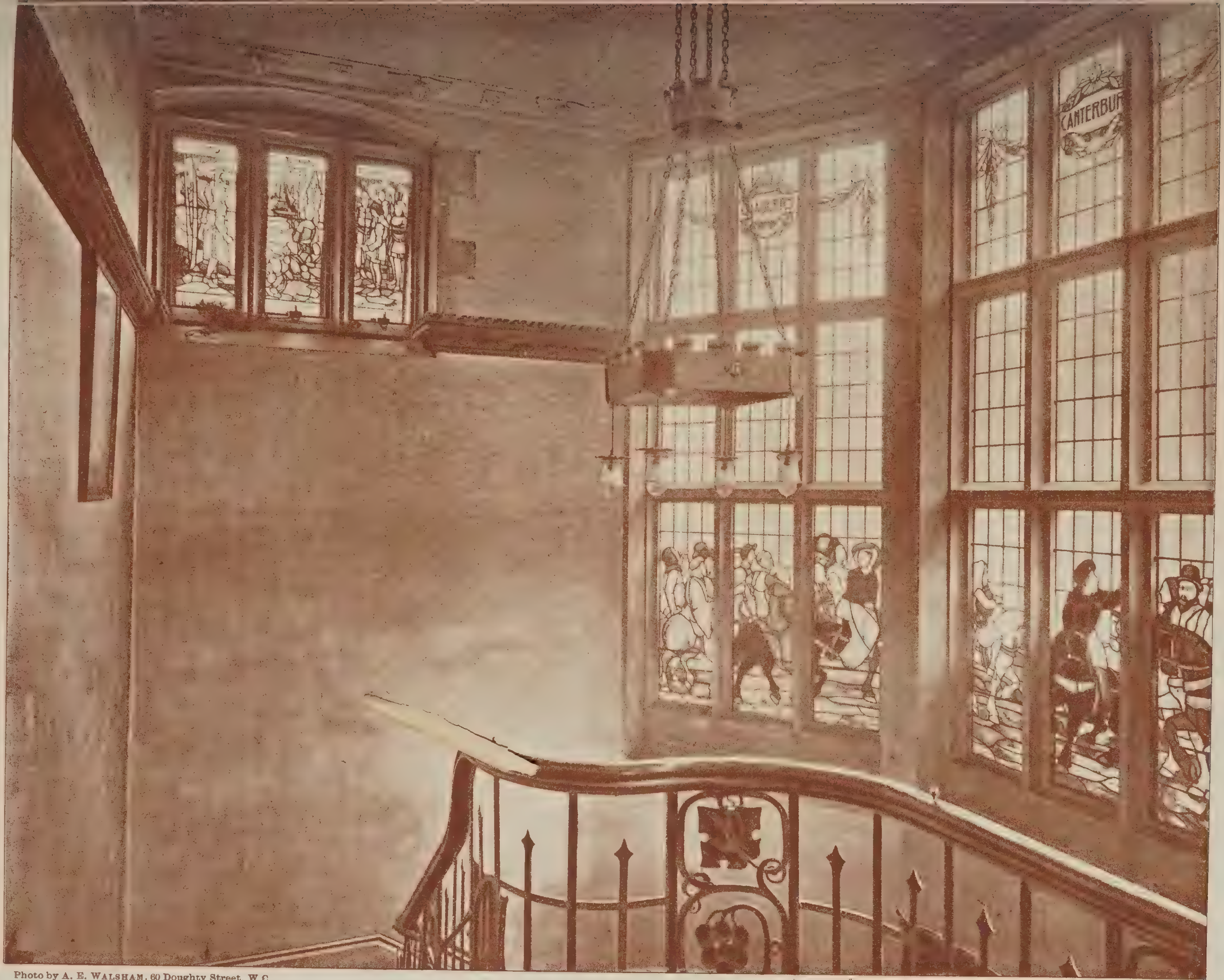
GLASGOW ARCHITECTURAL CRAFTSMEN'S SOCIETY.

THE first meeting of the session in connection with th Architectural Craftsmen's Society was held last Frida in the Technical College, Glasgow. Mr. James S. Boy Licentiate R.I.B.A., in his presidential address, dealt wit "The application of practical geometry to the solution problems in stone-cutting and to the full-size drawing dow and mould-cutting in masonry work." Referring to the trai ing of young masons who desired to qualify themselves foremen, he said that they should cultivate skill in the appl cation of practical geometry to the varied and complicate masonry problems which at times occur. Mr. Boyd demo strated several methods of setting out arches of various form on the drawing floor, and described how the moulds ar levels were developed in work of double curvature, ske bridges, interpenetrations of vaults, domes and other co plex masonry structures. Referring to the cutting of zi moulds, he condemned the general custom of giving th work to the joiner, instead of the mason, on whom rest the responsibility of producing correct work. In concludin he recommended young masons to uphold the dignity of the craft by making themselves thoroughly efficient, not mere as hewers of stone, but as scientific craftsmen.

COMPETITION NEWS.

Bristol.—The Grand Hotel Co. (Bristol), Ltd., announ that applications for particulars with regard to the propos alterations will not be considered unless received by Satu day next, October 7. All plans and designs, with estimat cost of alterations, must be deposited at the office of t Secretary, 44 Corn Street, Bristol, on or before October Drawings should not be signed, but names forwarded und separate cover, an identifying "nom-de-plume" appeari on both drawings and letter.

The Institute of Sanitary Engineers will hold its openi Sessional Meeting at Caxton Hall, Westminster, on Monda October 9, at 7.30 P.M. The President, Mr. A. J. Marti M.Inst.C.E., &c., will give an address on the programme f the session. A musical entertainment and light refreshmen will be provided. Admission tickets (free) and any furth information may be obtained on application to the Secretar 120-122 Victoria Street, Westminster, S.W.



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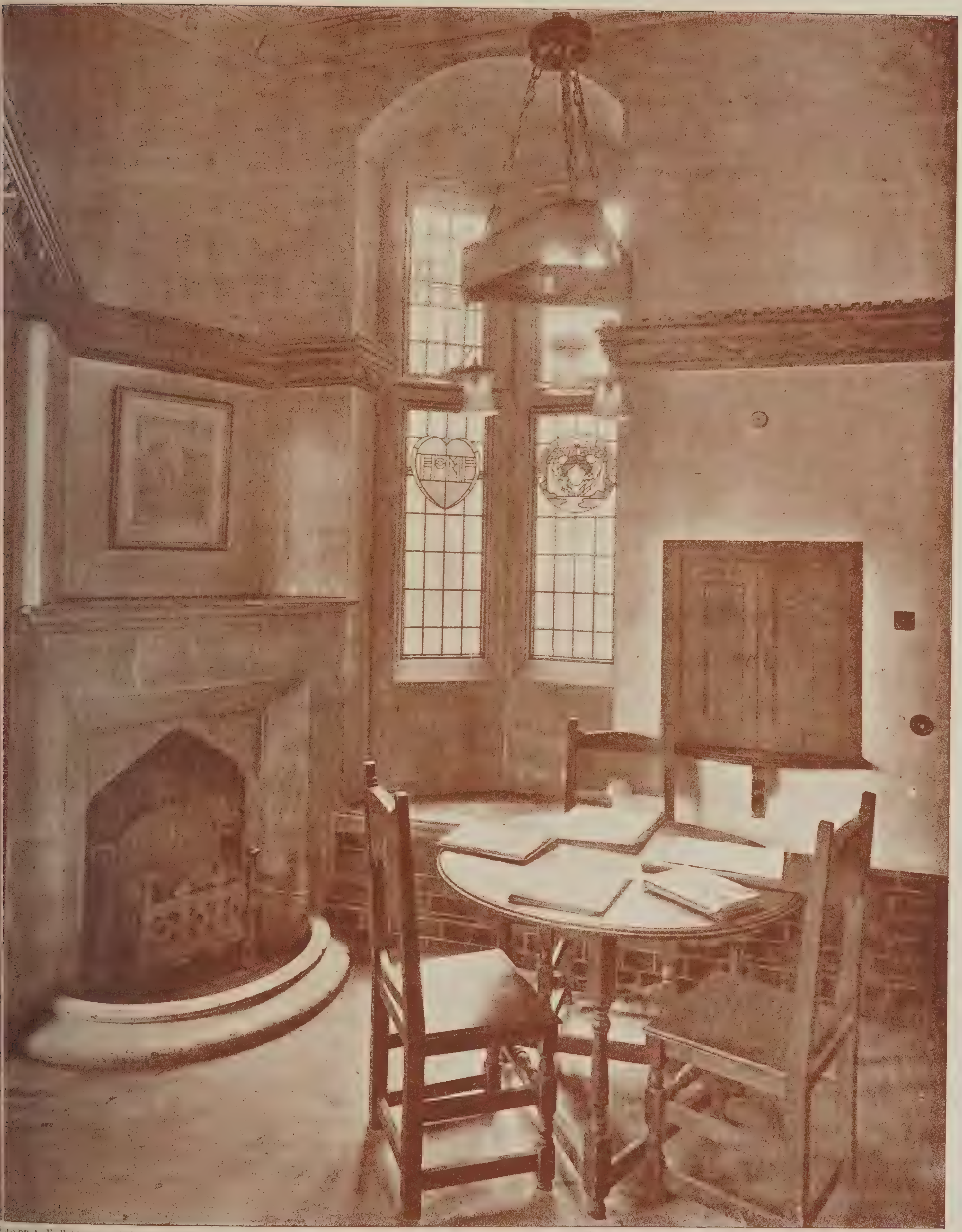

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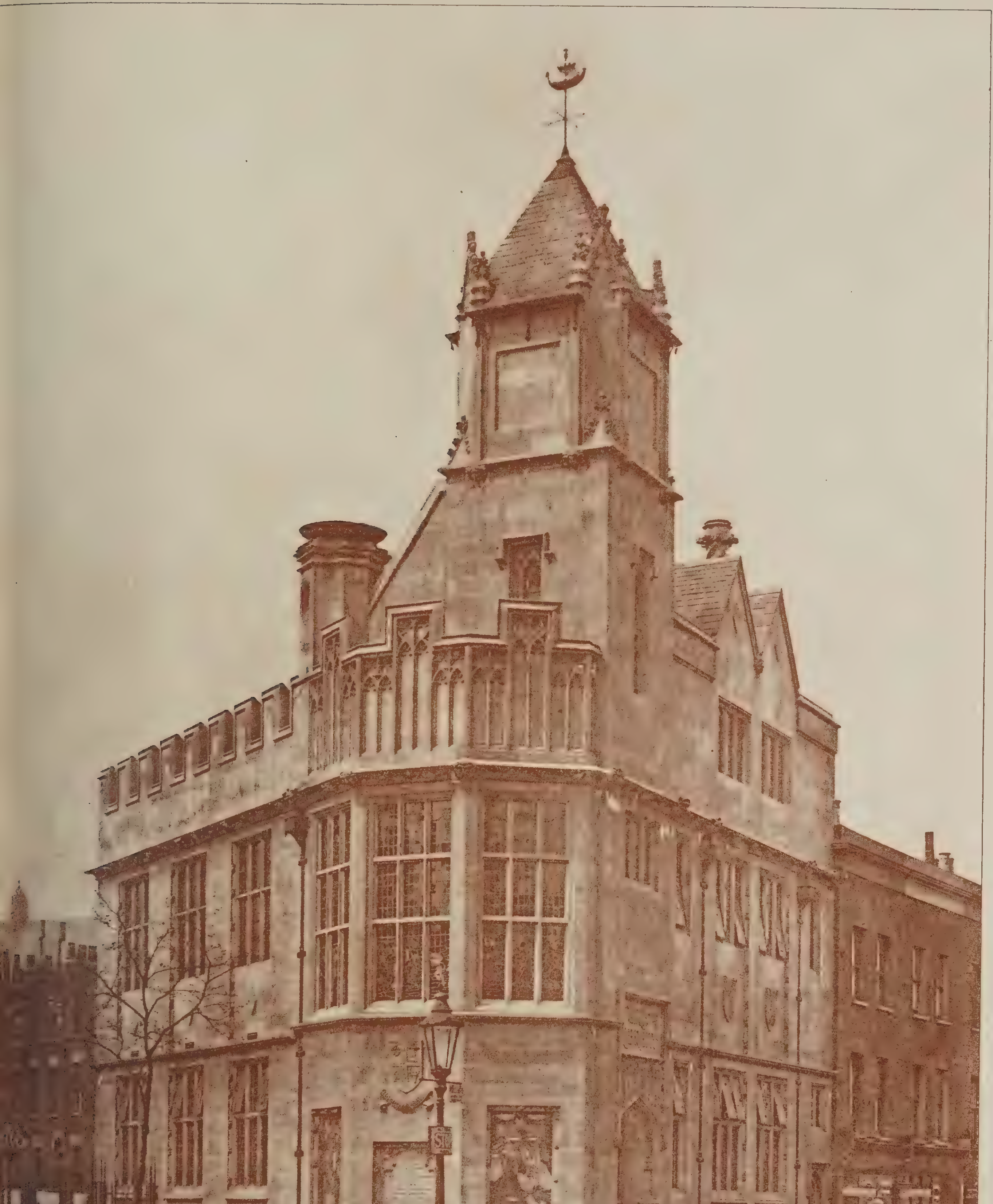

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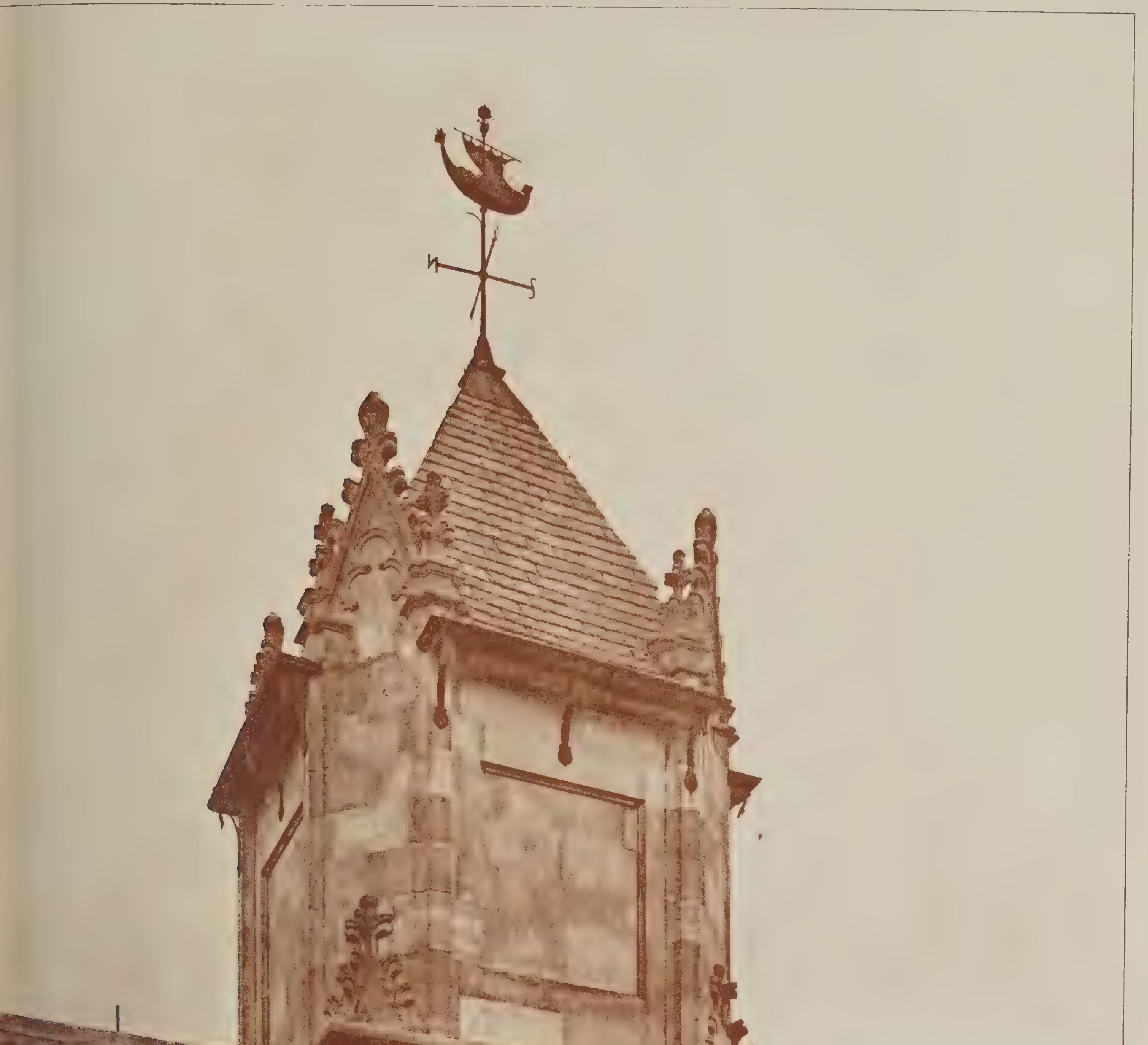

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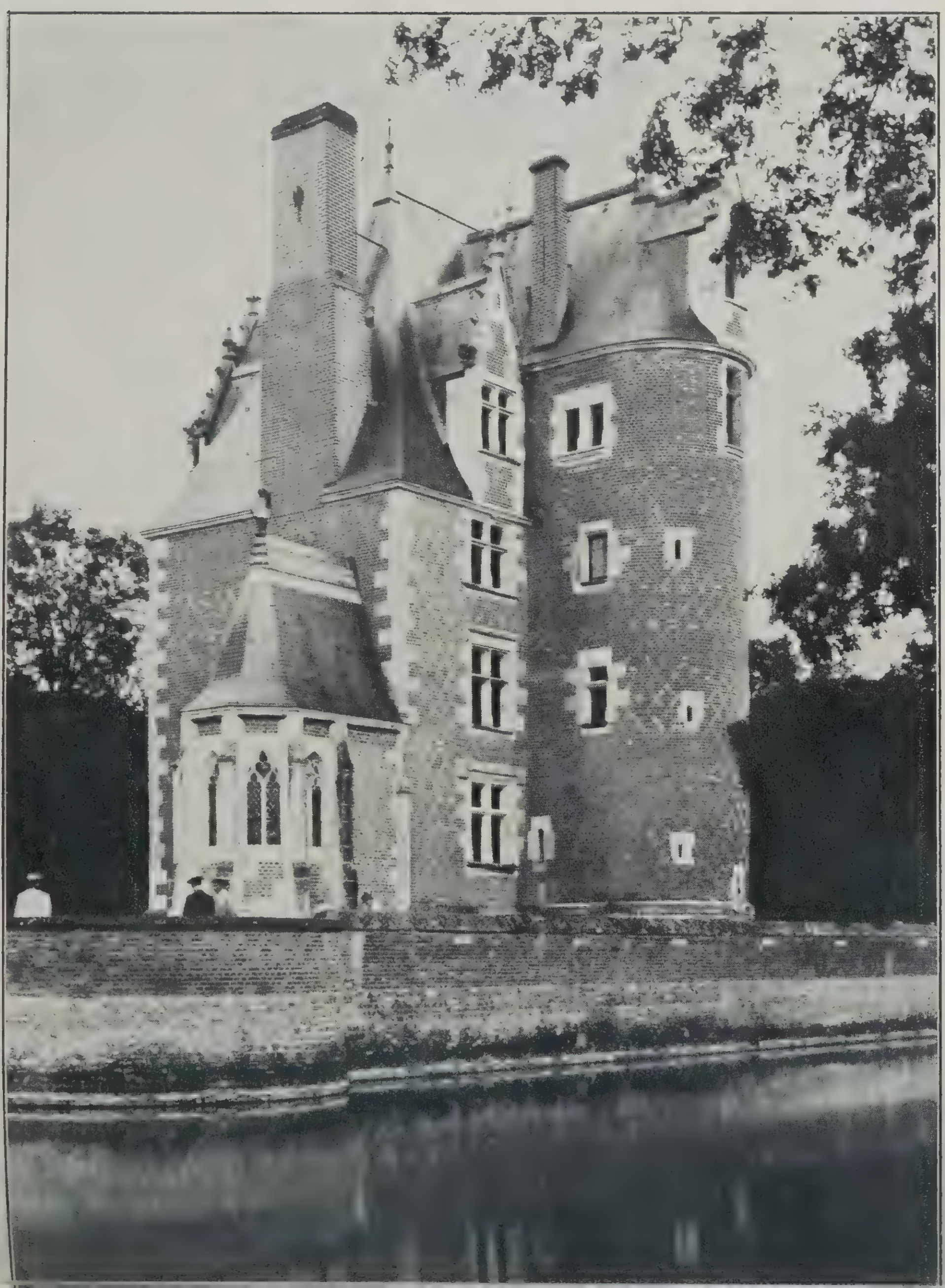

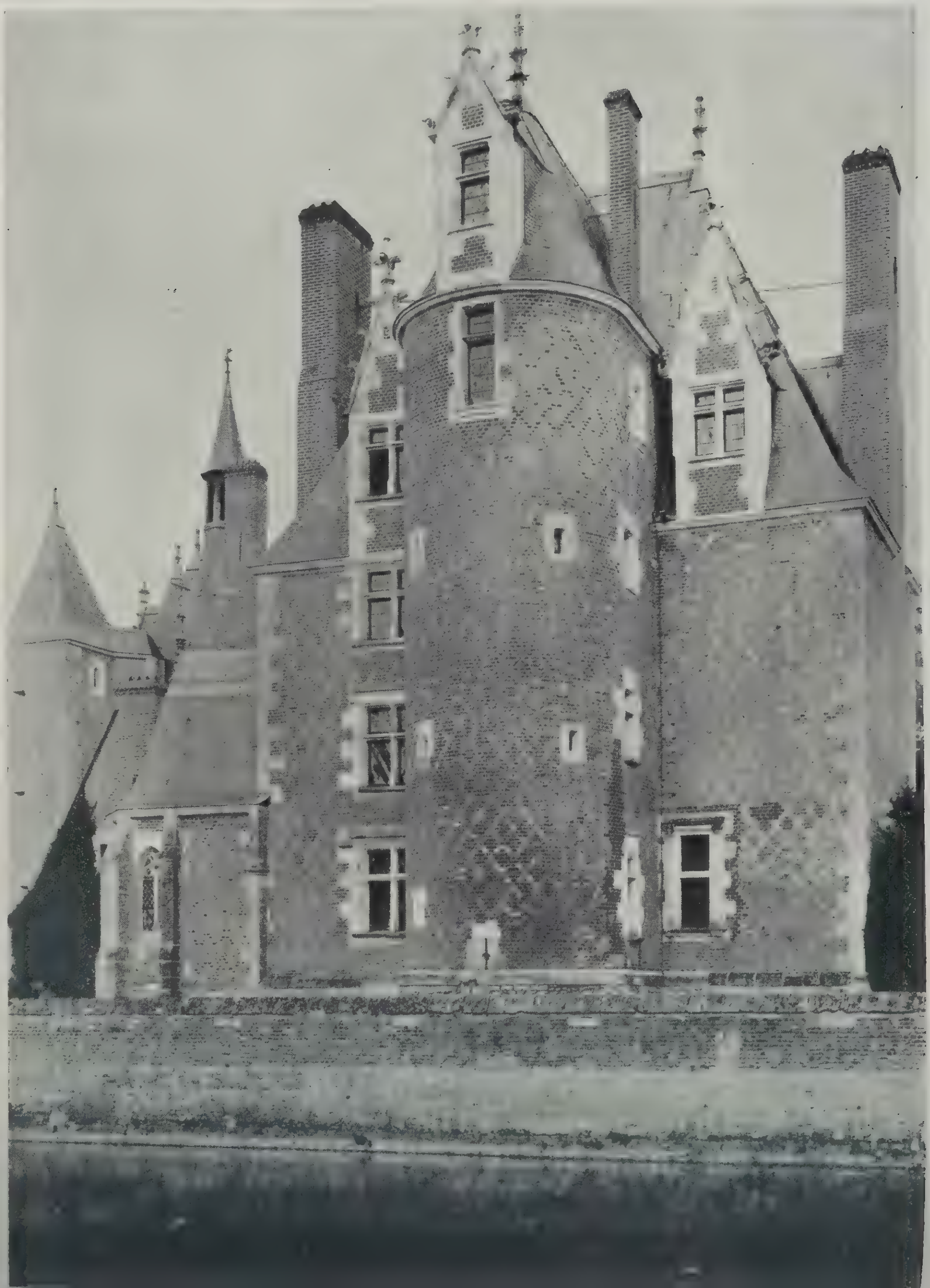

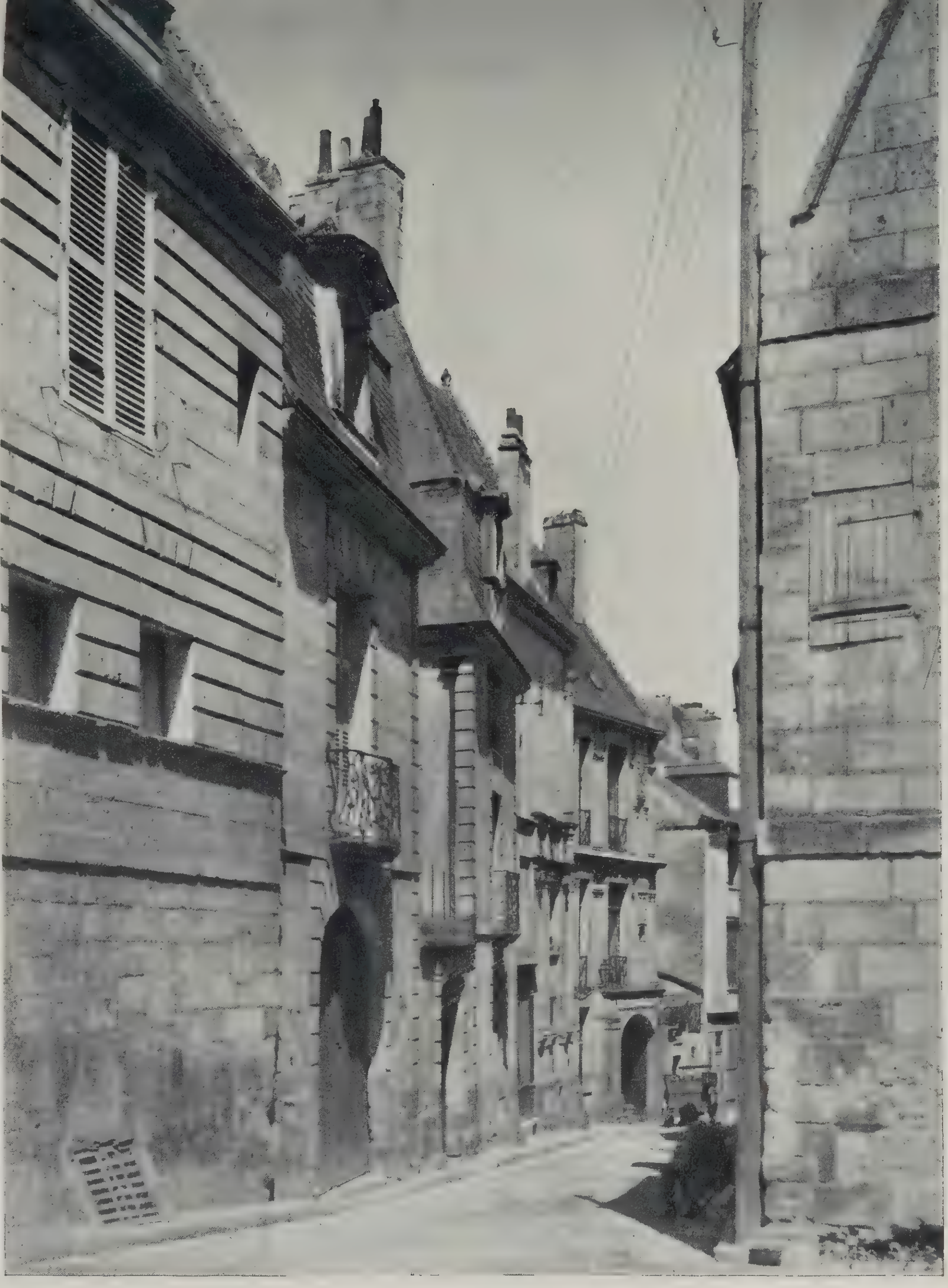

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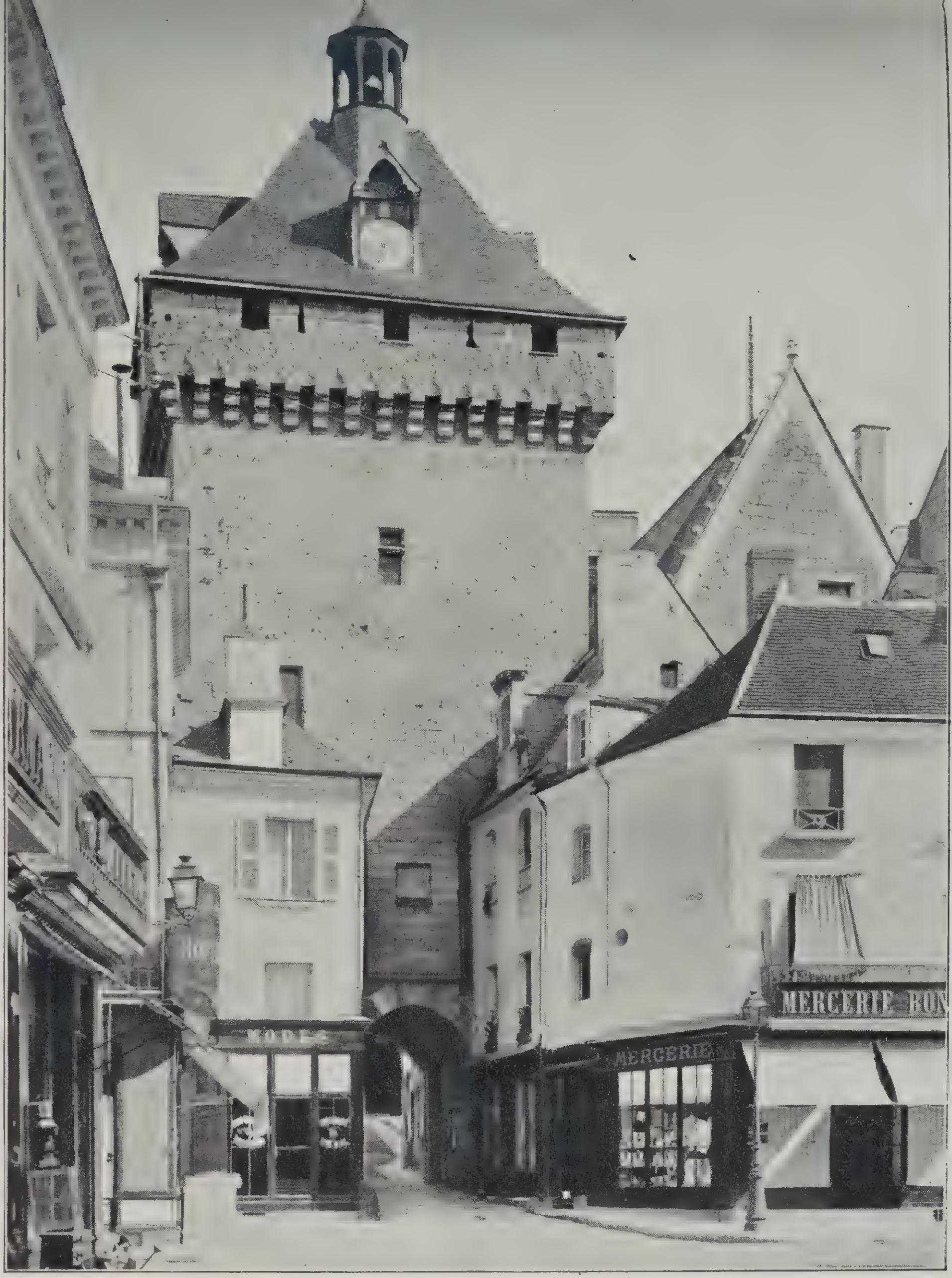

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ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION, 1911.

The Architect.

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FORTHCOMING EVENTS.

Monday, October 16.

Architectural Association : Mr. Raymond Unwin on "Town Planning, Formal or Irregular?"

Thursday, October 19.

Society of Architects : Twenty-seventh Annual General Meeting, University College, London; Second of a course of eight public lectures on "English Mediæval Architecture," by Mr. E. S. Prior, F.R.I.B.A.

Friday, October 20.

Royal Archæological Institute : Visit to Westminster Abbey to study the mediæval monuments and furniture.

Saturday, October 21.

Institution of Municipal Engineers : Third Annual General Meeting, at Windsor.

THE COMPOSITION AND STRENGTH OF MORTARS.

THE usually accepted rule-of-thumb specification for the proportion of one part of lime to three of sand r mortar, without consideration of the kind of lime or ariety of sand, is on the face of it unscientific, and whilst might be supposed to be a fairly accurate generalisation om experience and tradition, must be open to advan- geous modification under varying conditions. To ascer- in the extent and nature of that modification experiment obviously required, and we therefore welcome the ppearance of the report* of Mr. W. J. Dibdin on vestigations carried out at the instance of the Science tanding Committee of the Royal Institute of British rchitects.

Experiments have been made with three kinds of lime d five varieties of sand, giving in combination fifteen fferent classes of ordinary mortar, besides others in hich abnormal compositions have been tested, of which e shall speak later. Investigations have also been made the character and composition of twenty-nine ecimens of ancient mortar of various dates, from oman times to about the year 1800 A.D. It is curious notice that the rule-of-thumb proportion of one of ne to three of sand is justified neither by ancient actice nor by modern experiment. In only two cases d the samples of old mortar contain as large a proporon of aggregate as three to one, and of the fifteen modern ortars two gave their best results with a proportion of ree to one, two with three and a-half to one, four with o and a-half to one, and seven with two to one.

The limes with which experiments were made were hite chalk lime, Dorking grey-stone lime, and blue lias ne, whilst the aggregates with which these limes were mpounded were Leighton Buzzard standard sand, fine nd from Charlton, pit sand, Thames sand, and ground ick. Of these the order of fineness was Charlton sand, ound brick, pit sand, Thames sand, standard sand.

The general results of the experiments show that th varied combinations of lime and aggregate different oportions give the greatest strength, that the same proortions in any given combination do not necessarily give equally high ratio of strength in tension and in comession, that "green" mortar is frequently stronger than that two years old, especially in weak combinations. Hence the important lesson is clearly established that for any particular combination of lime and aggregate there is a particular proportion which will give the best results.

Thus white chalk lime with standard sand reaches its highest crushing strength with a proportion of three and a-half to one, but with Thames sand the ratio must be two to one. Dorking grey-stone lime developes its greatest strength with ground brick in the proportion of three and a-half to one, and with Thames sand requires the ratio of two to one. Blue lias lime will take three to one with pit sand and two and a-half to one with Thames sand. So one can also compare the varied results with any given aggregate: thus, for example, ground brick, to make the strongest mortar, requires a ratio of three to one with white chalk lime, three and a-half to one with Dorking grey-stone lime, and two to one with blue lias lime.

Not only do the most satisfactory proportions vary with each combination of lime and aggregate, but certain limes give better results with certain sands, and other limes with other sands. Thus, white chalk lime gives the strongest crushing strength with fine sand, but greystone lime with pit sand. The experimental results with tensile stress vary in a similar manner, but do not run on parallel lines with those for crushing stress. Thus it is by no means a simple matter to specify the right proportion of lime to sand in order to obtain the strongest mortar, and no one general formula will suffice for all cases.

Another line of investigation which has been pursued by Mr. Dibdin relates to the effect of mixing a small proportion of clay with the aggregate used in making mortar. The experiments made in this direction were limited in number and in scope, but gave interesting and valuable information. With each kind of lime as used in the ordinary mortar tests, three varieties of aggregate—standard sand, fine Charlton sand, and pit sand—were tested in a combination of three to one with 5 per cent. addition of red London clay. The general result was that with fine sand the addition of clay brought about a serious deterioration of crushing strength, with coarse sand there was some diminution in combination with white chalk and grey-stone limes, and a considerable increase of strength with blue lias lime and coarse sand.

Tests for ascertaining the adhesive power of certain mortars to two qualities of bricks—stock and Fletton—were made by Mr. Dibdin, and their results are given in his report. From these it appears that the adhesive power of the mortar is considerably greater in the case of Fletton bricks than with stock bricks and with ground

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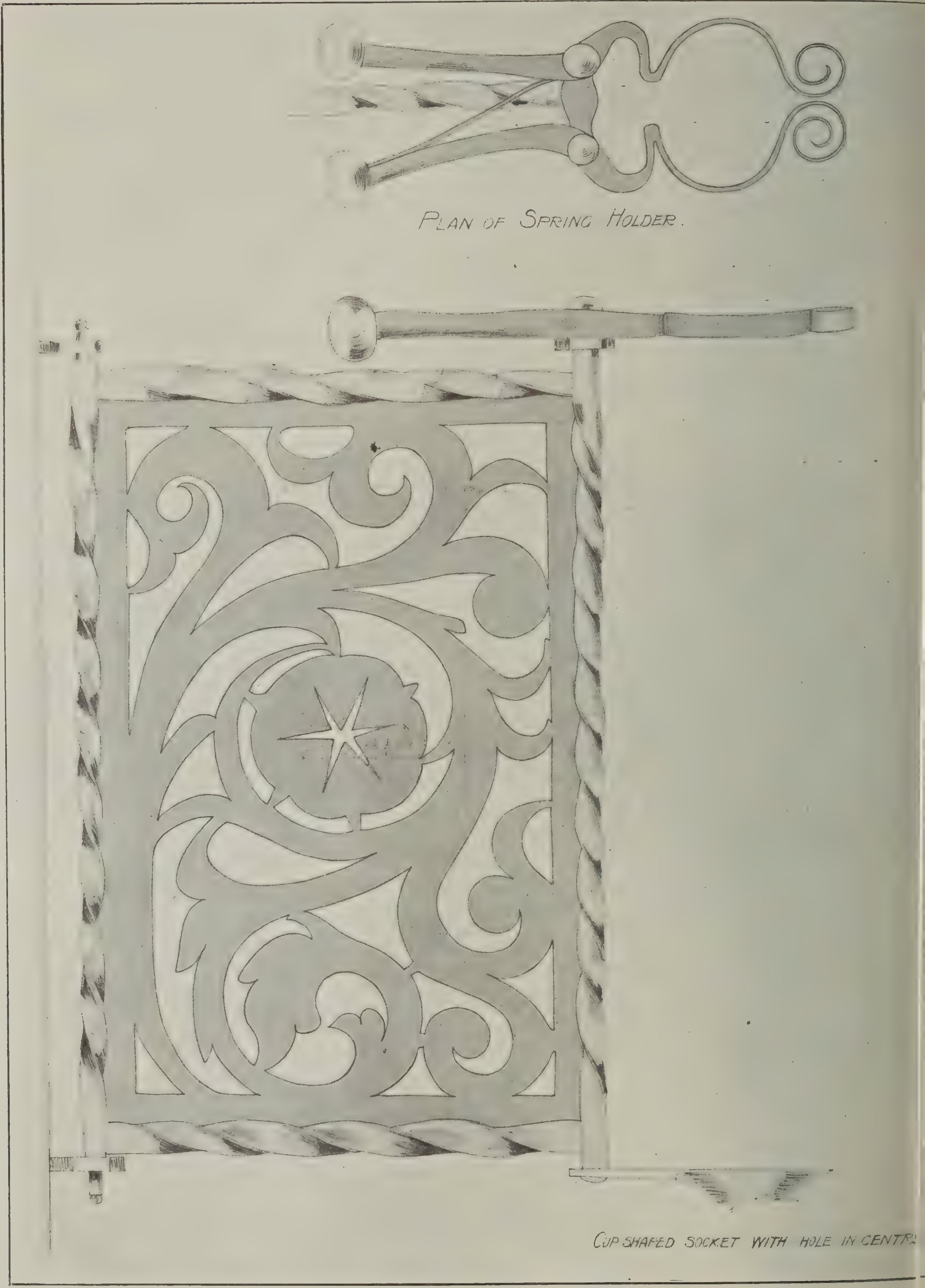
* *The Composition and Strength of Mortars.* Report on the ults of the experimental investigation conducted for the Science. nding Committee of the Royal Institute of British Architectse W. J. Dibdin, F.I.C., F.C.S., &c. (London : The Royal Institut British Architects. 5*s.*)

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



WROUGHT-IRON BRACKET, ST. JOHN'S CHURCH, LEEDS.—Drawn by Mr. E. H. Gibson.

ST. JOHN'S CHURCH, Leeds, was built between 1632-33 by John Harrison, a citizen of Leeds. The plan consists of two aisles of equal size, with a square tower at the west end of the north aisle. The aisles are divided by a row of pillars with Renaissance caps, supporting pointed arches. Both aisles are lighted by square-headed windows with cinque-foil lights. The details of the masonry are almost entirely Gothic. The woodwork, on the other hand, is Jacobean. At the east end of the church are two chapels separated from the aisles by a Jacobean screen. The on the north side of the church is used as the chance the southern one is the Harrison chapel. The aisl roofed by large tie-beam trusses and the ceiling is divid into squares formed by the purlins and principal ra which squares are filled with ornamental plaster decor The iron bracket shown in the illustration is used t port the mace, and is fixed to one of the pews nea pulpit.

rick rather than with any other of the aggregates tested: t should be noted that the tests for adhesion were made vith Dorking grey-stone lime only, and, in view of the esults obtained from the fuller series of experiments for ensile and crushing strength of ordinary mortars, it is ossible that different results might have been obtained vith other limes. It is also worthy of notice that with ortar of Dorking grey-stone lime and either pit sand, hames sand, or ground brick the mortar broke in itself nstead of leaving the surface of the brick, so that the est might be supposed to have become really one of the ensile strength of the mortar, but that the figures for dhesion are considerably higher than those for the tensile trength of the same mortar tested in briquettes.

An interesting section of Mr. Dibdin's report is that ealing with the effect of trass as an element in the com-osition of mortar, and the results are given of tests made y various investigators in Germany and by Mr. William halloner in England.

The report gives in detail a large amount of informa-on as the result of 1,776 experiments, all of which are abulated and illustrated by diagrams, so that we have ere a classic work on the strength and composition of ortars.

NOTES AND COMMENTS.

The Vicar of Bardney, Lincolnshire, in a letter to e *Times* appealing for the sum of £350 for repayment f money lent for the purchase of the site of Bardney bbey, gives the following particulars of the results of xcavations already made, which we regret to learn from e same source is now ceasing for want of funds: It is well known to a great number of people that xtensive excavations have been going on now for two nd a half years, with remarkable results. We have just nished the whole area of the church, which is 260 ft. ng, 61 ft. broad, and 130 ft. across the transepts; the xcavating has disclosed considerable remains of 30 illars, two altar slabs, and 80 monumental slabs of nusual interest *in situ*, 54 of which have inscriptions ating from Abbot Roger de Barowe, 1352, to William otheray, Sub-Prior, 1525. The refectory contains not nly the stumps of the table legs, but also the triangular-haped trestles (with carved heads) that carried the tables; e dorter, reredorter, chapter-house, kitchen, and well re full of interest."

Mr. Raymond Unwin, in his inaugural address as ecturer on town-planning at Birmingham University, vell defined town-planning as a co-operative art which an only be successfully carried out on a large scale by e cordial co-operation of many experts. The archi-ect, the surveyor, the engineer, the valuer, the economist, e sociologist, and even the antiquarian must all con-ribute their experience and their skill. Some of them ust decide absolutely the limits within which the design ust be worked out; and each of them in future must nderstand the bearing of his own branch upon town-lanning as part of his equipment. He hoped that this ourse of lectures might be helpful to many who would be rought in touch with the work in this way, but who might ever intend actually themselves to design town plans. ome, however, will in this narrower sense seek to become own-planners. What should be the qualifications of uch a one? He cannot expect to become an expert in all e subjects touched upon; but he must at least know nough of each to be able to co-operate intelligently with hose who are experts, and to assign to the contribution f each its proper place in the whole. With respect to e object and purpose of town-planning he explained hat during the last century the town has become a unit f increasing importance in the national life, and one of e greatest tasks of the present day is to transform the morphous aggregations of population which by courtesy e call towns into genuine communities, the expression f whose highly-organised social life shall be worthy f the honourable title of city. There is need in our city fe of the same guiding oversight and direction in developing the opportunities which its position affords, the same correlation of all the different parts, as are found so essential for a great modern industrial concern. Town-planning is simply the medium through which this organising movement finds its practical expression; the means which will enable each community to foster the growth and efficiency of those industries upon which its prosperity depends, by providing for their expansion in those districts where they will have the greatest convenience of rail and water carriage, power, heat, and light, in close touch with the many subsidiary requirements which facilitate their work. Through town-planning the community can provide for the most convenient communication by rail, road, or car between the industrial regions, the great centres of wholesale and retail exchange, and the various residential districts. Through its means the most healthy and attractive areas can be reserved for residential purposes and their proper development having regard to health, convenience, and amenity can be secured; through its agency also provision for recreation can be made by the proper distribution of playgrounds, parks, and open spaces. It is difficult to exaggerate the direct economy, increased efficiency, and improved opportunities of life which the organisation of towns may lead to, and the impetus which may thereby be given to the development of a race of healthy and energetic citizens.

The proposed abandonment of a Government Central Department of Archæology in India would be nothing less than a misfortune, and we are in full accord with the following letter which has been addressed by the Committee of the India Society to the Secretary of State for India:—

October 7, 1911.

To the Under Secretary of State for India.

Sir,—I have been directed by the Executive Committee of the India Society, at a meeting held on October 6, Mr. Walter Crane in the chair, to express to the Secretary of State for India their earnest hope that the proposals attributed to the Government of India for abolishing the Central Department of Archæology in that country may not receive his sanction.

The committee have heard with dismay of this project. The recent and very fruitful efforts which have been made by the British Government to meet its responsibilities as the custodian of the ancient treasures of Indian art and architecture form, by universal consent among those qualified to judge, one of the brightest features in modern Indian administration. The committee feel sure that the threatened abdication of the central authority in this Department would be widely felt as a heavy blow to artistic and archæological study in the East. They are aware that the complete cessation of the work is not contemplated, but rather its decentralisation. It is, they understand, proposed to leave it in future to the local administrations. These administrations, however, proved notoriously unequal to this trust when it was in their hands prior to 1902; nor, in the nature of things, can any better results be expected of them now. The abolition of the Central Department under the control of the Government of India would probably result in the work for which the Department is now responsible being done at haphazard, mostly by ill-qualified hands. It would certainly mean the abandonment of all hope of training up an efficient school of Indian archæology. It would leave foreign institutions, such as the archæological wing of the admirable "Ecole Française" at Hanoi, the accomplishment, under far greater difficulties, of the studies and researches which have already, since the establishment of the Indian Archæological Department nine years ago, won so much credit for British scholarship and for the Government which supported it. The mere cessation of the annual reports of the Department would be felt as a serious loss to science, to history, and to art.

The justification of the proposed measure of decentralisation is apparently to be sought for in motives of economy, although the British Government in general is well known to spend less on objects of this description than do other civilised nations. In this connection the committee would point out that under present conditions there is at the disposal of the Central Government a qualified expert in every branch of Indian archæology. Unless the Provincial Governments were each in possession of a similar staff—an arrangement which certainly would not make for economy—the necessary work could not possibly be carried out with any approach to the present standard of efficiency. It is clear, therefore, that under the new conditions the work must either be done much more expensively or much worse. There is every reason to fear that both these unfortunate results may be realised—more money, in the aggregate, will be spent than at present, and most of it will be misapplied and wasted.

The Committee of the India Society would, therefore, most respectfully but earnestly urge upon the Secretary of State the importance of maintaining the Indian Archæological Department upon the same lines as at present—lines upon which its value and efficiency have already been abundantly proved. The committee consider that the abolition of the Department would be a calamity which would be deeply felt, not in India alone, but wherever the results of archæological discovery and the preservation of the memorials of a great historic civilisation are valued and understood.

I have the honour to remain, Sir, your obedient servant,

T. W. Rolleston, Hon. Secretary,
India Society, London.

In this month's issue of *The Connoisseur* is included a short descriptive article with several illustrations of carved miserere seats in Exeter Cathedral. Dr. Wm. A. Shaw contributes an interesting article on "An Early English pre-Holbein School of Portraiture" and a number of coloured plates are given, illustrating the work of the school. A special feature is made of the work of Josef Israels, reproductions of which in monochrome are included. Illustrations and descriptions are given of the two pre-Reformation chalices that remain in Lancashire, the Hornby and the Clayton examples. A coloured plate of the Mona Lisa picture forms the frontispiece of the number. Brass amulets as worn by cart horses is the subject of an article by E. V. Alison, illustrated by examples from the writer's collection of two hundred specimens.

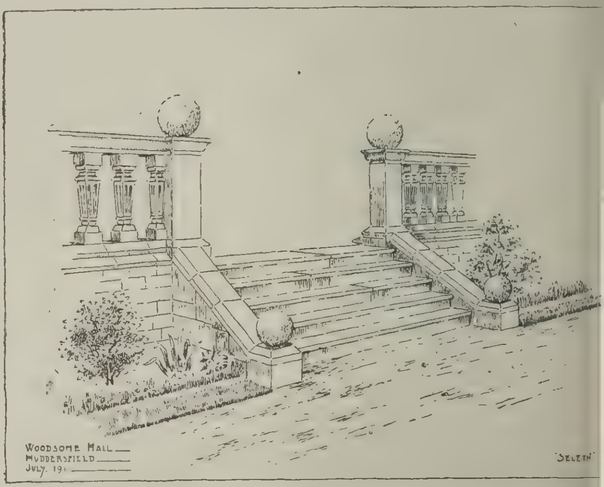
It could scarcely be expected that modern ideas of town-planning would escape opposition, and an example of such opposition comes from East Birmingham, where in consequence of the Town Planning Sub-committee of the Birmingham City Council having refused to pass plans for the erection of more than ten houses to the acre in the Ward End district, a public meeting was held to protest against what was declared to be a harsh and unpractical interpretation of the Act and conditions which would prove detrimental to the welfare of the working classes. At this meeting after some strong protests against the policy of the Council, which it was stated would prevent the erection of houses of 6*s.* 9*d.* a week rent and limit building to houses of 10*s.* to 12*s.* a week the following resolution was passed by a large majority:—"That this meeting of the ratepayers and householders of East Birmingham protests against the manner in which the Town-planning Act is being put into operation. It considers that the intentions of the Act are being exceeded and violated, and that the restriction of ten houses to the acre, which it is sought to impose upon builders, is impracticable and unnecessary, and will prevent the erection of weekly houses at rents which working men can afford to pay. It considers that, while it is desirable to lay out new districts on town-planning lines, the proposed restrictions should be modified to enable suitable houses to be built for working people. It trusts arrangements will be made so that building operations may proceed, and thus prevent a large number of workmen being thrown out of employment this winter. It directs that a copy of this resolution shall be sent to the Lord Mayor and the Secretary to the Local Government Board'

"THE ARCHITECT" STUDENTS' SKETCHIN
AND MEASURING CLUB,

THIS drawing shows a fine example of a flight of ste
with the accompanying balustrade leading from t
lawns up to the paved forecourt of a fine old hall of t
Renaissance period in Yorkshire.

The terrace behind this balustrade commands a magn
cent panorama view over an extensive valley—the hall sta
ing on a hill near Huddersfield.

The proportions of this piece of seventeenth century wo
manship are such as to prove valuable to any similar p
tion, and are notable for grace of outline and solidarity
construction. The steps are easy "going," and quite pla
with a simple rounded nosing, and the balustrade is c
posed of double-splayed coping to the retaining wall, a



square moulded and fluted balusters supporting anot
coping, with a bold "cyma" moulding—the bottom fille
which is plumb with the face of the square pillar. The pil
are capped with massive stone balls 17 inches diame
The width of the coping forms an excellent leaning r
being 15 inches wide and of an easy and suitable height a
the court. This flight of steps is placed axially with
main entrance porch of the building.

Woodsome is situated in the well-known stone distric
Huddersfield, and this stone-work has suffered very li
indeed from the ravages of time, as it is still in excel
preservation.

SCHOOL OF ART WOOD-CARVING.

THE prospectus of this School for the coming ses
has just been issued, and gives particulars of
classes, which are held during the day from 9.30 A.M
1 P.M. and from 2 to 5 P.M. on five days in the week,
from 9.30 A.M. to 1 P.M. on Saturdays. Evening cla
are held on Monday, Thursday, and Friday from
to 9.30 P.M., and on Saturday afternoons from 2 to 5
Fees vary according to the time that students wish
attend, which may be for one day or one evening up to
whole time the School is open. Included in
prospectus are some excellent notes for students by
Walter Crane, R.W.S., Mr. A. S. Cope, R.A., and
William Emerson, F.R.I.B.A., which are of gen
interest, and which we reprint as follows:—

THE TREATMENT OF PLANT FORM AND FIGU
IN WOOD-CARVING.

The treatment of plant form has an important bea
upon the wood-carver's art, seeing that it relies la
upon foliated forms, leaves, and flowers, for its prin
enrichment. The degree of formality in the treatmen
plant form in carving must, of course, depend largely
the nature of the work, its general style, and the relati
parts to the whole. The conditions of the work may a
of a near approach to nature in some cases, while in oth
strict convention and formalism may be necessary.

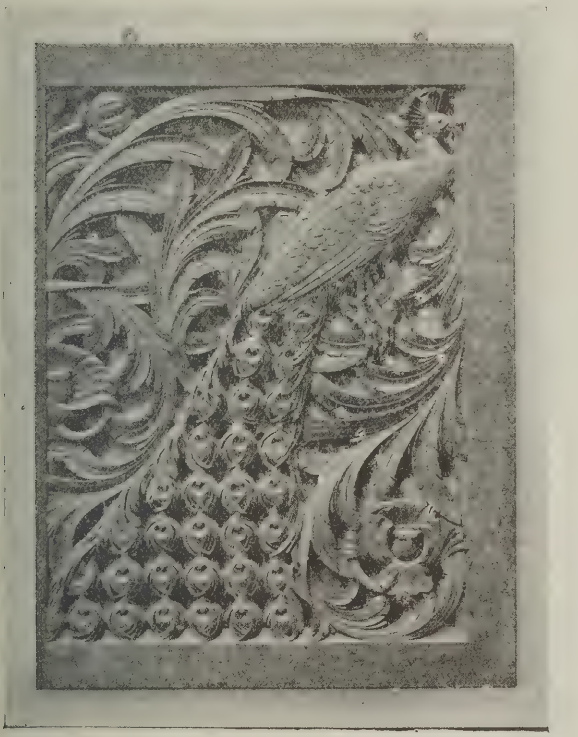
When, however, natural forms are used and it is an o
to represent definitely, but in an ornamental way,
known plant, regard should be had to its essential chara
and the law of its growth, and no attempt should be m
under the false idea of making it more graceful or decora
to conventionalise it out of all resemblance to itself.

oak, for instance, should not be made to follow the lines of the clinging vine, or a rigid plant of vertical habit treated as if it were a creeper. A certain convention or formalisation is always necessary in using natural forms in decorative design of any kind, but there is good and bad convention.

Planes of relief, light and shade, and texture being the chief means of expression in carving, much depends upon the feeling and taste with which these resources are utilised so as to give appropriate contrasts of surface, while the entire design should be in keeping with the construction and use of the object it is intended to adorn.

These latter considerations should really determine the appropriate treatment, also the choice of type of design; but, of course, it is possible to treat one object, say, a cabinet, in a variety of different ways. If a rich and intricate effect is sought for one would select a small crisp kind of foliation and make use of the contrast of smooth surfaced leaf and spherical berries, such as a treatment of the holly might afford (for the panels), while the flat styles and enclosing linear mouldings would give the necessary repose and opposition. For broad, smooth, and rather flat effect, leafage of the type of the laurel would be appropriate.

For finials, crockets, or crestings, for suggestions both in design and carved treatment, a study of the leaf-buds and shoots of trees is recommended, such as the chestnut and the sycamore, which in the various stages of their opening in the spring show most beautiful and delicate structure and form. Students are strongly recommended to keep note-books and to make drawings of such things whenever opportunity occurs.



Dead leaves, too, are full of beautiful curves, especially oak leaves that have dried and hung on the tree in some sheltered place all the winter.

The lines and spiral curves of wood-shavings, or of strips of thin paper which has been rolled, are useful to study for fresh suggestions in the treatment of scroll-forms so useful in carving, and for the treatment of heraldic mantling and Lambrequin.

Heraldic forms are indeed pre-eminently adapted for treatment in wood-carving, and a study of heraldry in its fine periods is strongly recommended to wood-carvers. Mediæval examples, English work of the thirteenth and fourteenth centuries, or early German Renaissance, such as may be found in The Triumphs of Maximilian by Burgkmair, or the fine work of Albert Dürer are the best.

This suggests a word in regard to the carving of animals and the human figure. In good heraldic examples, again, will be found excellent suggestions for the treatment of animal forms in ornament, one important principle to observe being the rhythmic arrangement of the main lines and limbs in action, and also the controlling influence of an unseen boundary, within which your animal or figure should be designed—square, parallelogram, circle, or oval—which last will probably be the most generally useful.

In the treatment of figures in wood-carving, drapery is always a very important element, as being one of the chief means of giving richness and colour to a design. Well-designed drapery also helps to express the movement and life of figures, besides giving broad planes or rich folds to contrast with the smooth and delicate modelling of the faces and finer details of the hair or costume and accessories.

German carved altar pieces of the fifteenth century, such as may be found in the Victoria and Albert Museum, may be studied with advantage for the treatment of figures; as also some of the interesting miserere seats and stall work in our English churches and cathedrals, which are full of vitality.

Walter Crane.

A PLEA FOR MORE ADVANCED TRAINING.

The School of Art Wood-carving having succeeded by admirable instruction in attaining for its students a high percentage of practical efficiency in the actual craft of carving, the time has most certainly arrived for giving the advanced students an opportunity of making themselves better acquainted with the characteristics of the different styles of decorative design, that have attained a high place in the history of art.

The importance of this, in the opinion, I think, of every practical artist, cannot be over-estimated, as without it a student is launched on an unknown sea without charts or experience, and left with but the remotest chance of arriving at any desirable destination.

I have heard propounded a theory that to omit all study of the past is the best method of developing genius and originality in the future! One might as reasonably expect a fine opera from one ignorant of the laws of harmony, or for a young recruit to conduct a successful campaign, without even a study of the methods of the great generals. Originality is the development of individual feeling grafted into the tree of knowledge—knowledge of what has been done by great designers, and fortified by a thorough acquaintance with the main principles of beauty and of proportion.

We must also bear in mind that originality is not only a rare plant, but that where it does exist it will blossom unaided, and all the sooner and better for a thorough and humble study of the best work done in the past; while the many who have not that particular gift are greatly handicapped in obtaining remunerative employment unless they are competent, on demand, to execute work in harmony with the style required.

It is obviously impossible for any one either to design, restore, or even copy *accurately*, a piece of work distinct in style, such as the subtle curves in Louis XV. designs, unless thoroughly conversant with that period, and I would therefore strongly urge the desirability of taking steps to assist and encourage students to complete their practical training by mastering in turn the main principles of Gothic, English, Italian, French, and Spanish carving, and then to specialise in the particular period that most appeals to their own individual taste and feeling.

In this way—and in this way only—will they be able to attain a higher state of efficiency, and so enable them to compete successfully with the carvers of France and Italy, and raise the whole standard of wood-carving in this country.

A. S. Cope.

THE RELATION OF CARVING TO ARCHITECTURE.

To one who proposes to take up carving as his life's work, the study of architecture in all its styles is invaluable, and, indeed, necessary, as carving in practically all its branches has some definite relation to architecture. Carving, like all the applied arts, is a handmaiden of architecture—the mother of all the arts, and should therefore be subject to it, not the dominant note.

It should enhance the beauty of the architecture, but should not be the principal thing that strikes the eye, either by its peculiarity or its scale.

This is the fault of a good deal of our late building, the dominant effect being an exuberance of much unnecessary carving, and often out of scale.

The general effect of the beautiful in nature, whether on a large scale—as in mountains and hills, or on a small scale, as in trees or flowers—first attracts the attention, and is always reposeful, then examination discloses the wonders of the details.

The study of architecture is needful to the carver, so that his work shall be in harmony with the style he is adorning; he will then not insert natural or Gothic foliage where conventional or Classic forms are needed, or *vice-versâ*. And it must be borne in mind that if art is "Man's delight in God's work," it is not by copying natural forms exactly that this is expressed, but rather by deducing therefrom by his own invention conventional renderings of them. Even the later mediævalists, notwithstanding their free introduction of natural foliage forms, nevertheless conventionalised exceedingly cleverly both in their wood and stone representations.

Obviously the styles of architecture must be studied by the carver; it would be inharmonious to introduce fifteenth century detail into thirteenth century work, or free Renaissance carving into a severe Classic building; therefore, to work harmoniously with the surroundings a complete knowledge of the differences in styles and a facility in working in them is absolutely essential. The study therefore must include learning the details and forms applicable to the various styles.

The scale of the work to which carving has to be applied has also to be most carefully considered.

William Emerson.

THE USHER HALL.

Since the memorial-stones at the Usher Hall were laid by the King and Queen on July 19 last great progress has been made with the works by the contractors, Messrs. Neil M'Leod & Son, Edinburgh. For this the beautiful summer weather enjoyed since then, which has enabled building operations to be proceeded with without a break, is in part responsible, but it has been the desire of the builders themselves to push on this important contract with as much despatch as possible. The contractors have on the job, according to the *Scotsman*, at present about 150 masons and labourers, including thirty or forty men at their yard, Harrison Road, who are engaged in preparing the stones, which are sent thence to Lothian Road, carefully numbered and ready to be placed in position. After the great ceremonial of July the contractors had about a fortnight's work in clearing away the grand-stands, and about three weeks more in re-erecting their cranes and getting the area ready for work. At that time nothing more than the foundations of the external walls had been put in; now the walls on all sides are up to a height of about twenty feet, or to a level of what will be the grand circle tier of seats. One can, in these circumstances, form now a very good idea of the appropriate character of the architect's design for the configuration of the site, of the handsome internal proportions which the hall will possess, and of the dignified character of the façade.

The base course of the building is of grey Aberdeen granite from Kemnay quarry. The blocks are finely axed or "nidged." The course itself, owing to the difference of the levels, varies in height from about eight feet or thereabouts on the north side to about one or two feet at its east end in Grindlay Street. Above this the walls are being built of a fine warm cream-coloured sandstone from Darney, Northumberland, specially selected for its weathering quality. The style of construction is what is known as channelled or rusticated ashlar. The walls are from five feet to two feet in thickness, according to the weight they have to carry; and externally at and about the principal entrance front they are embellished with handsome piers, which will rise to a height of about 22 feet. The main entrance doorways in Grindlay Street and Cambridge Street are flanked by double piers of this description. It is interesting to know that the memorial stones, with their fine Roman-letter inscriptions in the style of Trajan's column, which were laid by the King and Queen, will be exposed one on each side of the principal entrance. They are in grey granite, and in this prominent position will always be a reminder of the Royal ceremonial with which the building of the hall was inaugurated. Inside, the workmen are engaged in making a wide and deep horseshoe tunnel—following the shape of the hall and indicating the line of the main corridor—in which will be laid the main piping for all requirements. It also forms the main extraction duct for ventilating purposes. At the east end there is a large and deep excavation for the boiler-house and for a storehouse for chairs. These basement chambers will both be under the platform and area flooring. It may be noted that in connection with this excavation a solid seam of hard blue rock was met with, which had to be blasted to a depth of six feet. Igneous in character, the stone has been quite useful for building purposes. The stones of the school and of the buildings which were demolished to make way for the hall were found of good quality, and after being redressed have been largely used in the construction of the internal walls of the hall. In the excavation the workmen passed through boulder clay and blaize to solid rock; and for the most part the building is being reared on a rock foundation. Cambridge Street Lane has been widened by about ten feet, and will give access to the gallery and to the rooms of the artists, which are to be situated at the north-east end of the building. A considerable area has been thrown into the street in the angle between the Usher Hall and the Gaelic U.F. Church. In an open area between the east end of the hall and the Lyceum Theatre there is at present in course of construction a brick chimney stalk to carry off the smoke of the boiler fires. Its total height will be about 85 feet, and it is now 50 feet up. A large part of the west gable of the Lyceum Theatre has been underpinned in connection with the excavations at this end of the hall; and there will be a solid stone wall between part of the theatre gable and the hall. In addition to steam and hand cranes there are three huge cranes in the hall area at present at work in the lifting of stones and material. Two of them are worked by electric motors, the power supplied from the city mains. They can lift a weight up to three tons, and they have the advantage over the old steam cranes that they are easier to manipulate and do not send forth smoke.

THE WESTERN TOWERS OF GLASGOW CATHEDRAL.

Until the middle of last century, or, to be more precise, until the year 1846, Glasgow Cathedral possessed two western towers which projected beyond the present front in a manner resembling the remaining north-west tower at the chapel of Holyrood, Edinburgh. These towers, which had weathered the storm of the Reformation, and been repaired by the Town Council of Glasgow at their own expense, were foolishly removed—the south-western in 1846 and the north-western in 1848. As the late Archbishop Eyre said, "All who now see the grand old building, shorn of its cathedral feature and made like a large parish church, mock and laugh at the action of the local committee, saying, 'These men had two towers, and they went and pulled them both down!'" One of the reasons alleged for their removal was that they were not of sufficient antiquity; yet even at this time it was admitted by Archibald McLellan that at least one of them dated from the 13th century.

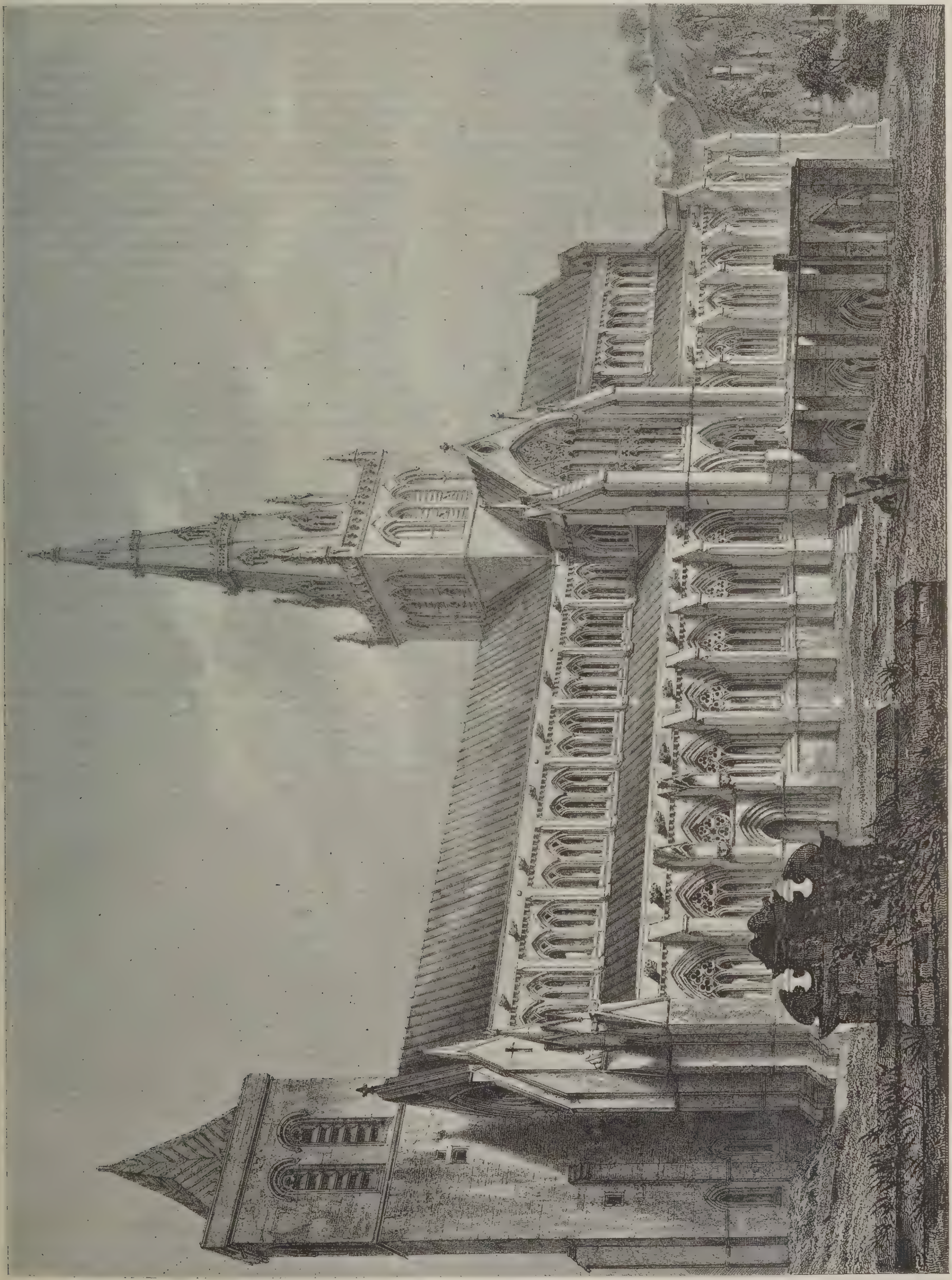
Several views of the cathedral with its western towers have been preserved, and careful measured drawings of these towers are included in James Collie's book of geometrical drawings of the cathedral, published in 1835. In addition to these, a drawing by Billings, in his "Baronial Antiquities," shows a magnificent view, dated 1847, of the cathedral from the south-west, with the north-west tower still standing, but with the south-west tower removed. It supplies just the note which is required to give the group the dignity of a cathedral, to make the west front worthy of the seat of an archbishop and of the unrivalled Lower Church. Since the removal of the western towers the best point from which to view the cathedral is from the north or south-east, from which points the lack of the western towers is not felt, and the full height of the double church is seen to best advantage. Viewed from the north and south now, the long ridge line of the nave terminates very tamely to the west, where, in the cathedrals of France, and many of those of Germany and England, magnificent towers are situated. In the case of the French cathedrals, these dominated the whole design, but at Glasgow, and, indeed, most of the British cathedrals they were meant to be subservient to the central tower.

Of the other Scottish cathedrals, Elgin, Aberdeen, and Brechin still retain their western towers, and in the case of Brechin, as at Glasgow, they are far from being duplicate towers. The north tower projects beyond the west front, and no one would now think of removing the other tower because it is not square like its fellow, but is one of the very few round towers remaining in Scotland.

The north-west tower at Glasgow was 32 feet square, with walls 5 feet 6 inches thick, rising to a height of 118 feet to the parapet, and to a total of 144 feet to the top of the lead covered roof. One buttress projected from each side, and served to support the stone vaulting inside. Besides the clock it carried two large bells, the gift of Archbishop Dunbar. Under date May 15, 1624, sixty years after the Reformation, we read that "The Provost, Bailies and Council ordain that the laich steeple of the cathedral be theiked with lead."

The south-west tower was much lower, and, indeed, hardly merited the name of a tower at all. It somewhat resembled the chapter-house and sacristy which project from the north east angle of the building, and was used as the library and consistory house, where the bishops held their ecclesiastica courts. It is evident from its thinner walls that it was never meant to be carried to the same height as the other tower. It measured 25 feet by 22 feet inside, and was 54 feet high to the wall-head. The roof was finished against crow-stepped gables, and the buttresses were arranged differently from those of the north tower. There was a large spiral staircase at the south-east angle. A minute dated April 5, 1628, states that the Provost, Bailies and Council have arranged and agreed that James Colquhoun, wright, and John Boyd, mason, build and repair the decayed parts of the library house of the cathedral, put the roof thereon, "geist and loft the same, and theik the same with lead, and do all things necessary thereto for 3,100 merks."

Perhaps one of the most interesting incidents relating to the cathedral is that which records how the patriotic Bishop Robert Wisehart, who, it is known, was at work on the west front of the cathedral, received a grant of timber from the forest of Luss for the erection of a bell-tower and treasury (*campanile et thesauraria*). But Edward I. of England complained in 1291 that instead of using the timber for his



GLASGOW CATHEDRAL—SOUTH-WEST VIEW. From Billings's *Baronial and Ecclesiastical Antiquities of Scotland*, by permission of the publisher, T. N. Foulis.

clock tower (*clocher*), the bishop had employed it to construct engines of war against the English garrisons of Scottish castles, especially the castle of "Kirkintolach." Mr. P. Macgregor Chalmers pointed out some years ago that this referred to the north-west tower, which, till its destruction, was the clock tower.

Early in the 15th century this tower was injured, and Bishop Lauder, who also built the parapet at least of the central tower, restored the north-west tower. No doubt the three beautiful corbels, with human figures bearing scrolls, which lie now in the chapter-house, are of this period. They are referred to by Dr. Wilson in the unavailing petition against the removal of the north-western tower as supporting the rich groining. He added that the removal of this tower "for the purpose of restoring the west front to a uniformity but poorly repays the idea of size and elevation formerly conveyed by the contrast between the central and west towers."

"Both buildings," Macgeorge remarked, "apart from their antiquity, were valuable as adding greatly to the beauty of the cathedral, and the tower was really essential to the proper balance of the structure; yet, incredible as it may appear, these two interesting and important parts of the cathedral, both at the time in the most perfect state of preservation, were pulled down by order of Her Majesty's First Commissioner of Works, in the course of certain operations professing to have for their object the improvement and restoration of the cathedral!"

Their removal is now admitted by all to have been a great error. Is it, then, too much to hope that the day may yet come when Glasgow citizens will honour themselves and their cathedral, of which they may well be proud, by rebuilding the western towers?

In the course of the recent restoration of the roof of Glasgow Cathedral, which has just been completed, the removal of the 14th century roof of the nave has revealed what was hidden between the plaster vaulted ceiling and the lead of the outer roof, about five feet of wall at the north end of the west gable, a corner, all that is left of the north-west tower, the bell tower of the patriotic Bishop Robert Wisehart.

THE FOREIGN RELATIONS AND INFLUENCE OF THE EGYPTIANS UNDER THE ANCIENT EMPIRE.

A COMMUNICATION presented to the British Association at the Portsmouth meeting, 1911. By G. Elliot Smith, M.A., M.D., F.R.S.

IN a previous communication attention was called to the fact that the population of Lower Egypt had received a strong infusion of alien blood before the time of the earliest Pyramid-builders. During the past year much more precise evidence has been obtained concerning these foreigners in Egypt and the distribution of their kinsmen beyond its frontiers; and in the process of following these people in Western Asia and North Africa much information has been obtained, which seems to be complementary to that obtained by historical research in Europe and a solvent of many of the apparently insuperable difficulties that have beset archæologists working in the Mediterranean area.

The aliens who mingled with the Proto-Egyptians in the early centuries of the third millennium B.C. were in large part the kinsmen of the people variously called "Armenoid," "Alpine," "Celtic," &c., who are said to have introduced the culture of the Bronze Age into Europe. Thus the early history of Europe is brought into co-relation with the great events that ended the Age of Stone in Europe and Western Asia.

The people of Upper Egypt discovered copper in Early Predynastic times, and during the succeeding centuries slowly learned to appreciate the magnitude of their discovery. In Late Predynastic times they were casting formidable metal weapons, which enabled them to unite the whole of Egypt under their sway. They pushed their way beyond the frontiers of Egypt, as they tell us in their own records—to Sinai for copper-ore, and to Syria for cedar from the Lebanons, as well as to the south—and they met and intermingled with the Armenoid population of Northern Syria, who acquired from them the knowledge of copper and its uses, while the Egyptians themselves took back into Egypt in their own persons ample evidence of the existence of an Armenoid population in Syria before 2800 B.C.

Before this time the Armenoids had been trickling into Neolithic Europe, without, however, making much impression upon the customs or the physical traits of its population; but once they had acquired metal weapons from the Egyptians they were able to make their way into Europe by force and to impose their customs upon her people, in virtue both of their numerical strength and the power they wielded from being better armed.

In Egypt itself the Proto-Egyptians in Predynastic times had learned to make not only weapons of war but also tools of copper. The skill they acquired in using these tools made them expert carpenters and stonemasons; and during the early dynasties they ran riot in stone, creating the vastest monuments that the world has ever seen. The knowledge of these achievements spread amongst the kindred peoples on the southern shores of the Mediterranean, to the neighbouring isles, and to Southern Italy and the Iberian Peninsula. But it was the knowledge of the various kinds of monuments that the Egyptians were building and not the skill nor the skilled workmen that spread: at the time of the Sixth Dynasty or thereabouts the fashion of building stone monuments, dolmens, menhirs, cromlechs, rock-cut tombs, &c., began to spread amongst the kindred peoples, not only on the west but also on the east of Egypt.

The evidence afforded by the excavations of Orsi and others in Sicily and Southern Italy seems to indicate beyond any doubt that Egypt was the source of the new burial customs that came into vogue in the Æneolithic Period. The features that seem so hopelessly inexplicable to the Italian archæologists are precisely those which the Egyptian evidence elucidates.

The absence of megaliths and kindred monuments in the track of the main Armenoid stream of immigration from Asia Minor into Europe is valuable negative evidence. The Armenoids of Asia Minor acquired a knowledge of copper weapons by contact with the Egyptians on the battlefields of Northern Syria; but they knew nothing (at the remote date we are considering) of stone-working or of megalithic monuments because they had no personal knowledge of Egypt.

ILLUSTRATIONS.

OXFORD CATHEDRAL.

THE Cathedral Church of Christ, properly called, originally the church of the Priory of St. Frideswide, is directly connected with the earliest recorded history of Oxford, dating back to Saxon days. The building consists of a choir of five bays with aisles, and on the north side two chapels of four bays, and on the south one chapel; a central tower and spire, nave of four bays with aisles, a large vaulted western entrance, a north transept with western aisle of three bays, and a south transept communicating with the cloisters. The chapter house is entered by a fine Norman doorway, of the supposed date of 1180. The upper portion of the tower, with the addition of the spire, was built at the beginning of the thirteenth century, together with St. Frideswide's Chapel; whilst in the fourteenth century the Latin Chapel was added. This drawing was one of those by "Plato" which received a prize in *The Architect* Students' Sketching and Measuring Club.

MAGDALEN COLLEGE, OXFORD.

ANTONY WOOD says "Magdalen is the most noble and rich structure in the learned world." It was founded by Wm. Patten of Waynflete, who in 1457 secured the site of the old Hospital of St. John the Baptist, and this is supposed to have been the original foundation. This drawing was one of those by "Plato" which was awarded a prize in *The Architect* Students' Sketching and Measuring Club.

IEW OF CLOISTER, DODFORD CHURCH.

THIS drawing, by Mr. Arthur Bartlett, F.R.I.B.A., was exhibited at the Royal Academy this year, and supplements the series of views of Dodford Church, Worcestershire, given in *The Architect*, January 28, February 11, and March 4, 1910.

HOUSE AT WALLSEND.

WE illustrate some of the unpretentious but artistic domestic work of Mr. Edward Cratney, at Wallsend-on-Tyne.

SIR JOHN SOANE, R.A., F.S.A., &c.*

[T is now some six and a half years since I wrote my original essay upon this subject, and 74½ years have elapsed ince the death of this architect, whose name is so well known ut whose works are as yet little appreciated.

Sir John Soane may be styled as having anticipated the eo-Grec development of to-day. In all his works we find, n close examination, a most scholarly appreciation of the lassical style of architecture in its minutest details. His useum in Lincoln's Inn Fields is a standing evidence of is cosmopolitan feeling for all art, whether it be Gothic r Classic architecture, painting, sculpture, or literature, nd there exists no more compact collection of material for e student to-day.

Genealogically, Sir John Soane is generally accepted to be e grandson of Francis Soan (spelt without the final "e"), the Swan Hotel, Goring, and the youngest son of John oan, of Basildon, a journeyman bricklayer employed on the urch there, who was subsequently drowned while fishing the Thames.

He had four brothers, three of whom died as children, nd three sisters, one of whom died at age twenty-three. he record of those living does not appear to be traced. In 84 he married Elizabeth Smith, niece of Mr. George Wyatt, Albion Place, a wealthy builder, who, dying in 1790, left large sum of money to his niece, which put them in an dependent position financially. By her he had issue four ns, of whom two died within a year of birth. The eldest, ohn, was given an excellent architectural education, but he bsequently went to the North of England, married, and ve up the profession. He had a son John who died at adeira in 1848. Soane's third son, George, married Agnes oaden in 1811, and had two daughters and a son (one ughter dying as late as the year 1897-8). This son was sinherited by his father owing to his becoming a playright. Sir John eventually left the surviving members of s family a legacy.

Young John Soane, the subject of this paper, was born Reading on September 10, 1753, and was educated at r. William Baker's school there.

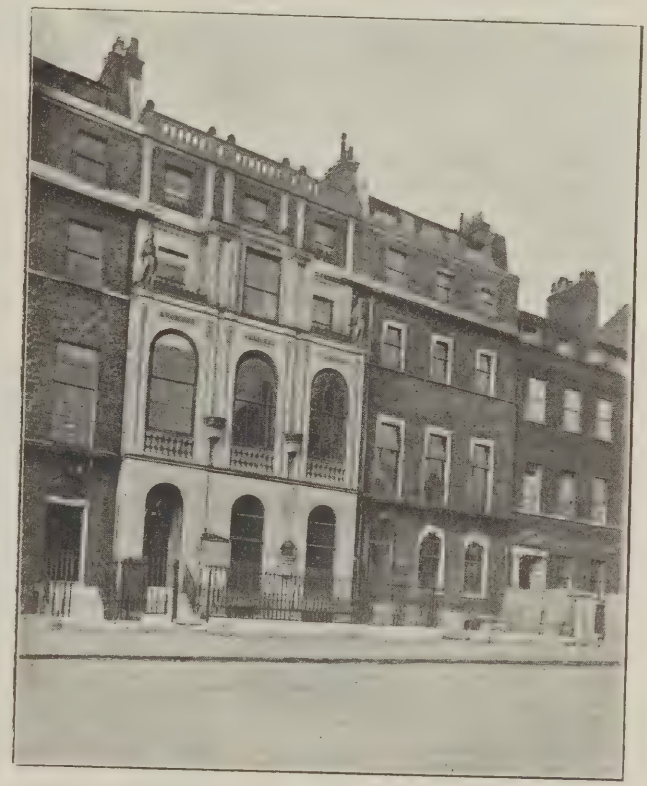
At the age of fifteen he was introduced by a relative to a rveyor named Mr. Peacock, through whose influence he beme employed by George Dance (junior), the architect of ewgate Prison, St. Luke's Lunatic Asylum, &c. He subseently joined Henry Holland, of the firm of Holland, Copnd & Rowles, timber merchants, to gain a practical perience of a more technical nature. This firm built oane Street, Cadogan Place, and Hans Place, old Battera Bridge, old Drury Lane Theatre, the Pavilion at ighton, &c.

At the age of nineteen Soane obtained the Royal Academy lver Medal for a drawing of Whitehall and the Gold Medal his second attempt four years later for a design for a iumphal bridge, which his biographer, Mr. Leverton onaldson, designates "a poet's dream indicative of the vast rtile resources of the mind of the author." Sir William ambers was equally struck by this effort of genius (which a perfectly practical design), and took occasion to introce him to King George III., who nominated him travelling dent for three years at £120 per annum, which was then e Royal prerogative and not, as now, exercised by the ademicians. (These were evidently the palmy days for A. students.)

Sir John Soane, in his "Memoirs," considers this the st fortunate event of his life, as it enabled him to form nnections to which he owed all the advantages he subseently enjoyed. A copy of Sir William Chambers's letter advice to one of his pupils at Rome in 1774 was given him to Soane, in which the following useful sentence urs: "Work in the same quarry with Michel Angelo, gnola, Peruzzi, Palladio; use their materials and search more, and endeavour to unite the grand manner of the st two with the elegance, simplicity, and purity of the t." (Dover House, Whitehall, was more particularly the rk from which, in my opinion, Soane obtained his inspiran.)

In 1777 Soane left for Italy, and at Rome made a design a British Senate House which was subsequently exited at the Royal Academy. He also made a design for royal palace largely based on the Diocletian Palace at alato and other famous Roman buildings, which subject a favourite with him, for in 1821 he exhibited a design at the Royal Academy for a palace proposed to be placed on Constitution Hill, of which a fine perspective was prepared in 1827 for presentation by Lord Farnborough to George IV. His efforts, however, proved abortive, for, as we know, the new palace was not destined to be from his designs.

During his travels Soane visited Paestum, San Lorenzo della Padula, and Calabria before returning to Naples, where he formed the acquaintance of Burdon and others, who engaged him as their draughtsman during a visit to Sicily, Malta, Athens, and Venice. Later he went alone to Verona, Vicenza, and Mantua before returning to Rome. At Rome he appears to have made the acquaintance of the eccentric Lord Bishop of Derry, afterwards Earl of Bristol, for whom he made a number of designs for altering Downhill in Ireland, and measured a temple at Tivoli for reproduction there. He was not, however, treated very liberally by this prelate, who only paid him about £50 for drawings and expenses, which Soane estimated at £400; but he must have made the acquaintance of a number of influential people in Ireland, who doubtless proved useful clients later. The Marquess of Abercorn, for whom he altered Bentley Priory, near Stanmore, and some additions to Barons Court, Ireland, was probably one of these. Soane returned from Italy in 1780 and started practice on his own account in London.



SOANE MUSEUM, LINCOLN'S INN FIELDS.

As to Sir John Soane's personal appearance and disposition, Mr. Donaldson says he was tall and of a graceful figure, with well-proportioned features, having a finely formed aquiline nose, giving a marked character and refined expression to his profile. In his deportment he was extremely dignified, with animated manner, and very prepossessing. In temper, however, he was irritable, impetuous, and untractable. He could not bear contradiction, and took opposition for personal hostility. He was passionately fond of literary pursuits, the collection of artistic relics, and the advancement of architecture. He was elected professor of architecture at the Royal Academy in 1806, and took the greatest pains in preparing and illustrating the lectures with models of temples, &c., which he had made at his own expense; these beautiful little models are still to be seen in his museum.

He was a good linguist, and was elected a member of the Academy of Fine Arts at Parma in 1780, of the Society of Antiquaries in 1795, an Associate of the Royal Academy in the same year, obtaining his diploma as Royal Academician on April 8, 1802, and was made one of the Trustees in 1825. He was elected Grand Superintendent of Works of the United Fraternity of Freemasons in 1813, chosen a Fellow of the Royal Society in 1821, received the honour of knighthood from William IV. on September 21, 1831, and was presented three years later with gold, silver, and bronze medals struck in his honour by the architects of England. In 1835 he received the medal of the Société libre des Beaux-Arts at Paris, and was made an honorary member in the following year. He became a member of the Academy of Fine Arts at Vienna in 1835, and was elected Consigliere Correspondent of the Academy of Fine Arts at Parma in 1836, a year prior to his decease.

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* A Paper read before the Camera Sketch and Debate Club of Architectural Association on Oct. 5 by Mr. A. E. Bullock.

Sir John was generous and charitable, and gave with a liberal hand to objects requiring pecuniary assistance. As we know, he established the Soane Medallion at the R.I.B.A. and gave that Institute a sum of £750 ; to the Architectural Society he gave £250, and large sums to the Royal British Institution. In addition, he gave a sum of £500 to the Royal Masonic Institution, and £1,000 towards the cost of a statue proposed to be erected in a monopteral temple near the Horse Guards.

Although he disinherited his son George, he bequeathed £20,000 in Consols and Three per Cent. Stock for the benefit of the four children. He left securities and property of the value of £186,000 on his death.

The "e" terminating Soane's name was added shortly after the publication of his first book of designs in 1778, entitled "Designs in Architecture," which is said to have been subsequently bought up by him. He published also a number of other books of his designs, proceedings respecting the law courts, pamphlets, &c.

In order to fully appreciate Soane's position, his advantages, and the difficulties with which he had to contend, it is necessary to briefly review the immediate sequence of architectural careers. His predecessors were Jones, Wren, Hawksmoor, Gibbs, Talman, Kent, Burlington, Vanbrugh, Archer, and Campbell. Those living in his early youth include Ware, Taylor, Dance (senior), the Adam Brothers, Holland, Wyatt, Wood, Chambers (who was twenty-seven years his senior), and Gandon, while his contemporaries were Inwood, Nash, Blore, Wyatt, and Wilkins. His pupils and assistants include the elder Smirke, Basevi, Gandy, Richardson, and Parke, with some eleven others of whom I have traced the careers, and in addition there is a record extant of the names of thirty-six men who have served some time in his office. In the latter period of his life he was associated with Burton, Elmes, Tite, Cockerell, Barry, and Pennethorne. His friends are too numerous to mention except to include the names, *inter alia*, of Britton, Chantry, and Donaldson.

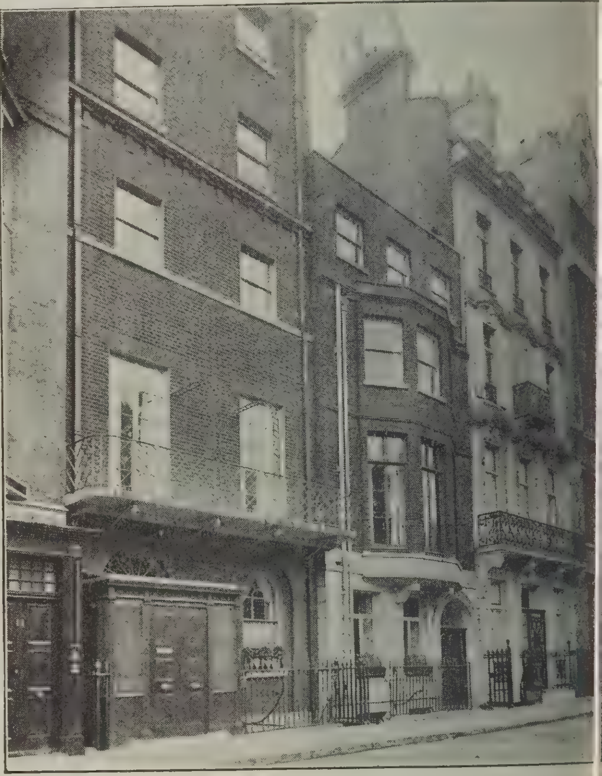
The only book of real architectural research of value extant during the youth of Soane was Stuart's "Athens," which appeared in 1762, while Taylor and Cresy's "Roman Antiquities" was not published until late in his life, and partly through the auspices of one of his own pupils. Moreover, Italy was rarely visited and Greece never, and works on modern edifices of France and Italy were unknown. It will, of course, be argued that there were the buildings of Inigo Jones and Wren and the other of his immediate predecessors in the profession acting the part of silent witnesses of the grand manner ; but it must be remembered that, apart from these works being entirely based on Roman models, it was hardly the spirit of the age in which Soane lived to be satisfied with home influence while the thirst for Hellenic exploration was rife. In view, therefore, of these many disadvantages, he made the most of his travels.

Soane's profound learning is amply exhibited from his frequent allusions to Vitruvius, Alberti, and other writers in the model lectures he gave to the students at the Royal Academy. He was a man of great integrity and uprightness, and was never influenced by sordid motives. He took pride in collecting rare works of art at any cost, marbles and casts from ancient fragments when neither the British Museum nor South Kensington Museums existed, and when casts of architectural detail were unknown. He was well informed upon current art and the progress made in all its branches, and was one of the first to recognise Turner's genius. He either personally attended or commissioned his friend Mr. Britton to purchase for him valuable books at sales of the effects of notable people to replenish his library and make it of the utmost use to the student. It is therefore to this dilettante trait that we must attribute the reason for the appearance of the meretricious ornament with which he loved to adorn his buildings, and which reached a climax in his treatment of his wife's tomb at St. Pancras Churchyard.

In his works we observe three distinct periods of taste, in the first of which he appears to have approached his attempts at design with some timidity ; experience and time subsequently made him bolder and gave greater solidity to his façades, while the final efforts exhibit a desire to creat a new style, independent of the orders with those unfortunat embellishments, which are often mean and meretricious. I is to these latter that some loss of fame is due. Stripped c them, many of his buildings would be dignified and origina The endless number of designs he would make for the trea ment of a feature testify to his restless desire to produce lasting effect. Many of his terminations express great beaut of outline and detail, and where he has used vases in th composition they are always graceful and refined. He wa a master planner in small limits, and in the case of th Bank of England the change of axes of the corridors, &c are often cleverly arranged. His works rarely exceeded th estimated expenditure.

The chief source of information as to the professional li of this architect is obtained from his "Memoirs of an Arch tect" (1835), dedicated to Master John Soane, his grandso copies of which were sent to, some of his personal friend wherein he closes his preface with the remark that "Arch tecture is a coy mistress, only to be won by unweari assiduities and constant attention."

Like Barry, Soane had little patience with Gothic arch tecture, which he considered too expensive for modern use he was nevertheless fond of King's College Chapel, Cambri of which he says "there is a boldness and mathema knowledge peculiar to this edifice which claims our ear attention and admiration." He doubtless had ample op tunity to study this building when considering the prop improvements to Caius College in 1789.



COL. GRAHAM'S HOUSE, 12 STRATTON STREET, PICCADILLY.

I will not weary you with a recital of the many the and deductions he gives in his review of architectural st but will just quote a verse with which he closes his expl tion of the "Elegant Refinements of Grecian Arch ture":—

"Let us hope that
The time not distant far shall come,
When England's tasteful youth no more
Shall wander to Italia's classic shore,
No more to foreign climes shall roam
In search of models better found at home."

From which it would appear that Sir John shared s what of the spirit of Sir Thomas More in looking forwa a perfect millennium in architecture here in England.

A perusal of Soane's life elicits one experience whi not uncommon in modern architectural effort—I allude t chagrin at being premiated yet superseded in compet works. He had this disappointment in connection with designs for the open competition for two Penitentiary H

Battersea Rise, for which he was premiated, yet the ildings in question were carried out by Blackburn and rdwicke.

In 1788 Soane published a book of his designs for houses cted in Norfolk, Suffolk, Yorkshire, Staffordshire, Warkshire, and Hertfordshire. This was not the first of his blications, since he brought out two editions of "Designs Architecture" in 1778 and 1797, which, as I have said, subsequently bought up.

Soane came in contact with Nash on more than one asion, and I am inclined to think there was little love t between them. They were both of an age and practised regards London) practically in the same area, entering same competitions, and there appears to have been keen alry between them.

Nash was born the same year as Soane and died two years ore him; his connection with Blore in carrying out the ks at Buckingham Palace was the last straw—Soane's ef ambition to erect the Royal palace being thus thwarted.

Among the many buildings in London which Sir John ne has designed or altered may be mentioned several ses in St. James's Square, including No. 33 (late Derby use), at the corner of Charles Street, for Lord Eliot; Earl of St. Germans, No. 19 (now No. 21) for the Duke eeds; the Earl of Hardwicke's house, No. 3, and a house Samuel Thornton, Esq. (No. 22). In Pall Mall he t the Marquess of Buckingham's house (No. 92), upon site of which the Carlton Club now stands, also the ntess of Pembroke's residence, No. 49 Grosvenor Square, red in 1802 for the new tenant, Robert Knight, Esq., had a library added, and again in 1818, when the les were built. No. 12 Stratton Street, next to Devone House, was built for Col. Graham, No. 18 (now 22) Park Lane, for Mr. Robins, for whom also he built 172 Regent Street, where Messrs. Robinson & Cleaver are. His own house, No. 12 Lincoln's Inn Fields, he t in 1792, and the Museum next door (No. 13) in 1812.

PICTURE GALLERY, DULWICH COLLEGE.

n the City, apart from the Bank of England, which we deal with in detail later on, he built the National Debt Redemption Life Annuities office in Old Jewry; New k Buildings, Princes Street, which is now pulled down, which I managed to secure a photograph of before the nd half was destroyed; Messrs. Thellusson & Co.'s nises in Meeting House Court, Old Jewry; Messrs. Goote, scott & Co.'s banking house in Threadneedle Street; nises for W. A. Jackson, Esq., in Fountain Court, ermanbury; and a mural tablet erected in St. Stephen's rch, Coleman Street, E.C., to Claude Bosanquet, 1786.

At Westminster he built the New State Paper Offices, in e Street, pulled down for the Foreign Office; the Board of Trade Offices, Whitehall, of which a fine model is to be seen in his museum; this building was refaced by Sir Charles Barry. Soane refaced Whitehall Banqueting House in 1829. He also erected the Scala Regia, Royal Gallery, and Library to the House of Lords, and later additional committee rooms, and designed plans for the new Law Courts there.

The alterations made to the Freemasons' Hall in 1815 were burnt down in 1884, and his other works include No. 189 Fleet Street, for Praed's Bank, the Insolvent Debtors' Court in Portugal Street, alterations to the College of Surgeons in Lincoln's Inn Fields, and Nos. 57 and 58 in that square, the new Infirmary to Chelsea Hospital, and alterations to St. James's Palace.

In 1808 Soane was occupied with the erection of a mausoleum to Mr. Noel Desenfans, adjoining the house of Sir Francis Bourgeois in Charlotte Street (now Hallam Street), Portland Place, and the sarcophagus to the same gentleman in connection with Dulwich Picture Gallery was erected in 1812; their pictures are housed here, being incorporated with those of Alleyn's College of God's Gift, Dulwich. Soane also added the anteroom to Chantry's studio in Belgrave Road, Pimlico, and the monument to Samuel Bosanquet, Esq., in Leytonstone Churchyard.

His works at Reading include the obelisk in the Market Place, for E. Simeon, Esq., and houses for Messrs. W. B. Simmonds and L. Lustwick.

In addition we may mention the building of many private residences in Norfolk and Suffolk, including Shotesham for Robert Fellowes, Esq., alterations to Norwich Castle and Blackfriars Bridge at Norwich, which was built with leaded joints to prevent the voussoirs slipping. (Now removed in favour of an iron construction.)

(To be concluded.)

THE ARCHITECTURAL ASSOCIATION.*

(Concluded from last week.)

I HAVE lately been reading some of Sir Joshua Reynolds's discourses—a work I would commend to your notice—and I was struck with the earnestness with which he impressed upon the students of the day the necessity of possessing themselves with the spirit of the great masters; and also with the manner in which he cheered them with encouragement to be determined to succeed when he roundly states, "He should have felt the same determination to become the most eminent physician as he then felt to be the first painter of his age and country." Such a statement, in its simplicity, reminds one of the remark attributed, I believe, to Mr. Edison, "that success in life is due to 1 per cent. of inspiration and 99 per cent. of perspiration."

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* **Opening Address by the President (Mr. G. C. Horsley), delivered on October 2.**

It was Sir Joshua Reynolds who, as I daresay some of you will remember, went, as a distinguished young painter of thirty years of age, to Italy to see for the first time the work of the great masters of the Renaissance. So impressed was he that he has written he felt he must become again as a little child, he had so much to learn. In this wonderful humbleness of heart Sir Joshua reminds me of Sir Christopher Wren, who showed the same willingness to learn, as is illustrated in that most interesting letter, which you probably know, which he sent from Paris, where he had gone for the purpose of study. Surely, these two men were much alike in character, with the same wide and sane way of looking at things, and the same thirst for knowledge. That "spirit of the old masters" which they possessed made them strive for a right kind of perfection in their work. It made them reject what was small and petty, and adopt the manly and virile. It made them discern and eliminate their defects, for, as Sir Joshua said to his students, "it was not by their defects that considerable artists acquired their reputation; they have a right to our pardon, but not to our admiration." He also taught that a student must not by mistaken industry lose his time in that which is merely ornamental. And in speaking of copying the old masters he says: "Instead of copying the touches of those great masters, copy only their conceptions. Instead of treading in their footsteps, endeavour only to keep the same road. Labour to invent on their general principles and way of thinking. Possess yourself with their spirit. Consider with yourself how a Michel Angelo or a Raphael would have treated this subject, and work yourself into the belief that your picture is to be seen and criticised by them when completed. Even an attempt of this kind will rouse your powers." He knew of his art, as we know of ours, that it is a progressive art; it is ever growing; and to-day, when science advances with strides, when space is being conquered, and distant lands may soon be easy of access, who among us can prophecy the future of the young architects? It shines in the distance as something mysteriously and gloriously interesting. And that future is not for these men only who carry off the most prizes. We cannot all be "Prix de Rome" men. It is for all who do good work. And again I quote from Robert Louis Stevenson: "All who have meant good work with their whole hearts have done good work." No man, even the greatest, ever arrives at the ultimate goal; he does his part, and passes on his experience to the next in the race, and very soon that responsibility will be yours. The future is for you, as, again, it will be for the young men who come after you.

In the meantime, you have to prepare for that future, remembering that, according to the truth and sincerity, the high ideal that you put into your work so will your influence upon the public be, and with you rests the education of the public. In order to emphasise this, I am again going to quote to you from Sir Joshua Reynolds's "Discourses," and I do not apologise for this, because, as I have told you, great men are our best teachers. In speaking to his audience on the subject of raising the public ideal, he reminds them of a remark of Euripides, who said to the Athenians, "I do not compose my words in order to be corrected by you, but to instruct you." And he adds, "It is true, to have a right to speak thus, a man must be a Euripides. However, this much may be allowed, that when an artist is sure that he is upon firm ground, supported by the authority and practice of his predecessors of the greatest reputation, he may then assume the boldness and intrepidity of genius; at any rate, he must not be tempted out of the right path by any allurement of popularity which always accompanies the lower styles of painting."

I think we may say that this is equally true of architecture; great men, who are the truly thoughtful men, always sound again and again the note of character. They know that a nation's place depends upon its national character, and the men and women of the day are the nation. In a sense we are all artists, but to you young men, who are not only artists in this general sense, but belong to one of the noblest—perhaps the noblest of the artistic professions—I would quote as a motto, and in conclusion of my address, King Alfred's words, "This will I say—that I have sought to live worthily the while I lived, and after my life to leave to the men that come after me a remembering of me in good works."

Mr. Arthur Keen, retiring President, in proposing a vote of thanks, said it was the privilege of the ex-President to propose the vote of thanks to the incoming President for his address. He (the speaker) had known Mr. Horsley from the day when he first entered on his architectural career, and it was, therefore, a very great pleasure to find Mr. Horsley occupying so worthily his present position. They had just been given a very thoughtful and interesting presidential address; indeed, it was one rather for thinking about than speaking about. Mr. Horsley had made us of two quotations from King Alfred. The latter on seemed peculiarly appropriate because an architect's wo was so enduring, and if it were good it exerted an influen for a long time. The other was also appropriate becaus at the Architectural Association the tools used and th materials put at the disposal of students were so of the ve best that they did not know how to make them better. Th student undoubtedly must not lose his time on what wa merely ornamental; but they did believe in proceeding fro building to architecture. The syllabus of the Board Architectural Education was a very remarkable and fin document. The architectural expression of a buildin must be the expression of the uses and construction of tha building. There was this danger connected with the teaching of architecture in a school—that it might tend t much to pencil and paper without reference to actual thing In thinking of this subject he always comforted himse with the reflection that here in England they had had any rate a Gothic revival. No one could realise how gre is the influence of that revival; it remained still with and acted as a powerful corrective. In the address ju delivered they had been hearing about the founders of th Association. Those men did not for a moment realise ho far their work was going to develop. Neither did the office at the present time have any impression how far it w likely to go in the future. The Architectural Associati had now come to a time when there was a second shaking dry bones. Until the various schools were co-ordinated was impossible to get the best possible results. The Roy Academy had now at its disposal such assets as no oth school possessed. If the Royal Academy came into li with the other schools the results could not fail to be the best kind. The R.A. must realise that it should be the head of all the schools of the country. He himself d not know what the projected school at Rome was to co sist of, whether merely a school of architecture and arch ology, or whether it would include painting and the oth arts. He believed, however, there would be an opportun of sending out students in considerable numbers before ve long. In conclusion, he would formally propose a ve cordial vote of thanks to Mr. Horsley for his admira address, and congratulate both him and the Association, he looked forward to a very successful year of office with Horsley at the head of affairs.

Mr. W. Curtis Green, Vice-President, in seconding vote of thanks, said that in 1892, the year he started his architectural pilgrimage, there was published a b called "Architecture: A profession or an art?" master he was then with gave him a copy. It was edi by Mr. R. Norman Shaw and Mr. T. G. Jackson, and consisted of a series of essays by eminent men on qualifications and training of architects. One of the m inspiring essays of the book was by their President, Horsley, entitled "Unity in Art." This was a deligh essay, and as true to-day as when it was written. Fr that time Mr. Horsley became a name to him high among those who counted. Twelve years ago it fell to good fortune to become a neighbour of Mr. Horsley's, he found that unknown young men were admitted to circle. If it ever fell to his lot to live in London ag he could desire no better fortune than to again becom neighbour of Mr. Horsley's on Campden Hill. Those went on the A.A. excursion in the summer knew his qu ties as a leader. They desired nothing better than follow his lead and to make his year of office worthy of him and of the best traditions of the Architectural A ciation. All had just listened to an inspiring addr its scholarship and wise discretion and wit must h impressed them very greatly. It was only a man Mr. Keen who was qualified to speak of the labour self-sacrifice necessary to fulfil the duties of office. T Architectural Association stood for unity in art. T could feel that it was now living up to its great reputat ot service.

Mr. Paul Waterhouse remarked that the President been talking to them on a subject which was most inter ng, viz., themselves. They were, of course, all students, hough not perhaps in the sense of being between 18 and 28 ears of age. But no man who was an architect, or hoped be useful as an architect, could ever abandon himself the feeling he was aged or even middle-aged, for he ad to possess that spirit of youthfulness which would nable him to spring upon a new job with as much keenness s a student enters for such a competition as the Soane. here were architects of all kinds, and now and again there ere architects who combined in themselves many different ualities. It would be noticed that the successful architect supposed to become a public speaker as well. As Mr. orsley had proved his worth in that *rôle*, many might be pt to say, "Give us the good old days which have produced men such as our President!"

The vote of thanks was carried with prolonged acclamaon.

Mr. Gerald C. Horsley acknowledged the vote, making pecial reference to Mr. Arthur Keen and his work last ssion as President. It was, he concluded, his firm intenon to do all he could to further the best interests of the ssociation, and he knew he would have the support of the embers during his term of office.

THE GLOUCESTERSHIRE ARCHITECTURAL ASSOCIATION.

HE fifth meeting of the session was held at the Northgate Mansions, Gloucester, on Thursday, September 28, e President (Mr. Walter B. Wood) being in the chair.

A large number of members and friends were present to ar a lecture on "Landscape Architecture" by Mr. Thos. H. awson, Hon.A.R.I.B.A.

In the course of his lecture Mr. Mawson said: I can sure you that I did not select the subject of my lecture thout due consideration of the consequences which it might volve. Nor did I forget that the art, the claims and the udy of which I am to advocate, is in its most important pect practically unknown in this country. At one time almost considered the risk too great; for I thought that all probability the members of this Society were banded gether for mutual protection and that they were probably gistrationists to a man, and that an alien like myself might t be allowed to peaceably enter this household of faith. I d, however, I was all wrong, and that the Society is really nded together for mutual improvement, for the elimination ego, the bane of modern architects, and for the fostering of classical education, and particularly for the purpose of curing to their younger brethren every advantage which search and scholarship can give them. This Society aims gh and hopes that some day English architecture may im an academic course equal to the Ecole des Beauxts, or some of the new American schools of architecture. is being so, I feel that I may have something to contribute, d that I may be even able to suggest a useful though gthy course of study, the fruits of which will meet with due reward when once our town councillors awake to the ct that in the development of cities on topical or æsthetic es they are hopelessly behind any part of the civilised rld.

That we have lost that fine sense of spacious planning ich has given to us modern Edinburgh and so many London ares, few will deny. Nor will the travelled man or woman ny also that whilst we are becoming less spacious in our ys and more trivial in our planning, more individualistic d less communistic in our architecture, other countries are rning the restraint which ever characterises the highest .

Though it may seem to be a digression, I venture to offer an planation for this disparity between our own conditions d those which obtain abroad. It is simply this, that as in England acquire wealth we seek the country and the tractions of sport.

Abroad as a man acquires education he draws nearer the art of the city, where he finds art, music, literature, and se other refreshments of the mind which are necessary to intellectual life. The student of landscape architecture ds that both the wealthy Englishman and the educated eigner both demand beautiful surroundings. The Englishn has his country seat, fine gardens, and expansive main wherein to take his pleasure. Abroad, the man who ks the city combines with others to surround themselves th beautiful parks and gardens, but these are for the use all and free to all.

So much by way of preface. Now let us try to understand at is meant by "Landscape architecture," and how the art n be acquired.

As usually understood, "Landscape architecture" conjures up to the mind a slight and partial infusion of colour, neatness, and prettiness into the domain of nature or the surroundings of our homes. Whether these scenes are romantic or commonplace it conveys no more to the mind than dressed-up improvements. Others again think of it as a happy field of *laissez faire* in which there is no constructive beauty. To them "Landscape architecture" is not an art, but something to play with, which may be taken up or dropped at will. How wrong this is we will seek to show.

The successful landscape architect must not only be able to build up in his mind's eye the whole of the buildings, roads, parks, gardens, ornaments, and utilitaria into one harmonious comprehensive scheme, of which he is able to prejudge the effect, but must have that intimate practical knowledge which will ensure his giving full effect to his dream.

To do this successfully the landscape architect has not only to study architecture in the round, but he must also have a keen appreciation of natural objects and features, and possess the power to weave the natural and the artificial together without discord.

I think this is generally conceded to the art in its relation to domestic architecture, and very few architects would nowadays undertake the design of a country domain without consulting the man who has schooled himself in these larger problems of landscape and garden composition. To this extent we may say the art is recognised in England. How does it stand in relation to town development? Surely, if anything this is where the landscape architect is absolutely essential.

Some eighteen months ago I was severely taken to task by the entire London press for stating at the annual meeting of the County Municipal Engineers that "Whilst English private gardens are incomparably beautiful, our public parks and gardens are the work of the crudest amateur." How differently these matters are directed in other countries.

The lecturer pointed out that in America the profession of "Landscape architecture" is far more developed than is the case here, and it was his opinion, from his acquaintance with America and Canada, that the profession of landscape architecture is gaining and must continue to gain in public appreciation in both those countries.

"The reason," Mr. Mawson said, "for the greater advance made by the profession in America than here is threefold. First, we have the fact that it is a comparatively new country, which is not only less hidebound by tradition and precedent, but one which, by its rapid growth, provides many more opportunities for the effective application of co-ordinated architecture; and, secondly, the absurd pretensions of persons in England totally unqualified to fulfil its duties, in whose hands many splendid opportunities have been thrown away; thus the minds of those who are capable of estimating the worth of the occasion are filled with a disgust of the whole profession. Lastly, and by no means least, we have here the most unfortunate etymological significance of the term 'Landscape architecture,' which suggests to many persons in this country either unwarranted interference in the realms of nature or a childish attempt to introduce it into our towns by little patches of futile gardening. If it were not that the modern significance of the expression is clearly understood both in America and on the Continent and that its use has become general and more or less unalterable, one would be tempted to advise the adoption of some other term, which would, by its construction as well as its application, describe and designate the 'architect-co-ordinator' whose province it is to arrange on an effective plan scattered and detached architectural units."

How little the subject is understood in England, even in well-informed circles, is shown in a recent article by Mr. Abercrombie in the *Town Planning Review*, in which the writer so strongly advocates the example of America and several Continental countries.

To avoid a misunderstanding, I would draw a line of distinction between garden design, whether called "Garden architecture" or "Landscape gardening," on the one hand, and "Landscape architecture" as the term is understood in America. The first relates, for the most part, to the creation of those private gardens of which, I have already stated, Englishmen have every reason to be proud; while the latter, though it includes the architecture of gardens, has most to do with works of a public nature, including the planning of cities.

It is characteristic of the attitude of the public generally to the profession in this country and in America, that while, here, few people nowadays venture to lay out a private garden without professional advice, the municipality still prefers the amateur's efforts to the skill of the professional. In fact, so great is the importance they attach to the art that the schools are not only splendidly equipped but are increasing in number. So determined are Americans to extract the best that the work can show that they send their professors on long quests to Europe to study Classic examples of landscape architecture at first hand, and to collect whatever literature, ancient and modern, can be got together for the use of the students.

Here, however, we are differently placed, for, notwithstanding the excellent curriculum provided by the Liverpool School of Civic Design, which, in many respects, is unique, it may yet be truly said that we are still without a school where the essentials of the art of landscape architecture as applied to civic betterment may be studied.

This brings us to the question—What are the essentials of the art? And what is the equipment, theoretical and practical, necessary for its practice? First, it may be emphatically stated that the pupil must start with a liberal education so that he may be able to exercise that catholicity of taste, power of concentration, love of orderly progression and logical sequence which can only be gained by imbibing the spirit at least of the classics. On this foundation must be built a knowledge in the round, and sympathetic interest in all the various branches of architecture, so that he may be able to meet and sympathise with the specialist in each branch of the profession, whether domestic, ecclesiastical, commercial, municipal, or otherwise.

He is to fit himself to design parks, gardens, and control natural reserves and park systems in a way that accords perfectly with the surroundings—that is, his design is not to be in any sense of the word disjointed, as most of our English civic parks seem to be. To this must be added, or it must be projected upon a study of sociology, engineering and architecture, botany, horticulture and arboriculture, which makes, broadly speaking, the full subject of town planning, which is in the American mind incorporated in the term landscape architect.

He must previously have had an expert training in surveying in all its branches, including the modern rapid methods of tacheometrical contouring, and must understand the geologic and other influences which go to make the different local conditions and the formation of the various soils to be encountered.

There are other minor affiliated branches incorporated with these in the Liverpool School of Civic Design, such as the legal aspects of town planning (seeing that we are more bound by precedent than the newer country); but, broadly speaking, apart from these national or local differences, we are at last following the ways of our countries, although we prefer to call the art by another name.

For the practice of landscape architecture, however, much more than this is needed, for, unlike other practitioners, the work of the landscape architect in city development is not so much the design and erection of units as the control and composition of extended areas and the harmonising of a multiplicity of features, natural and artificial; the first differing in scale and bulk from year to year, and the second constant and abiding. These features must be so manipulated, with a sound practical knowledge of probabilities in the case of the less stable factors, so as to make at all periods in their development a stately or picturesque whole.

Again, while in other branches of architecture a study of linear perspective so far as it relates to the portrayal of individual buildings or groups of buildings is necessary, in landscape architecture the fully equipped practitioner must be able to make birdseye views of the whole city, not, indeed, with the architect's close attention to detail, but in order to show a masterly group of broad areas in mass. Even this does not exhaust the list of the more obvious essentials of this branch of the profession of architecture, for the student must also attain an educated "sense of locality" which will enable him to grasp the practical and æsthetic possibilities of the site, to build up in his mind's eye a picture of the city to be, and, above all, to present his conceptions to others graphically and pictorially in such a manner that they too may participate in his vision and become fired with his enthusiasm.

This, I submit, is a standard of attainment which cannot be reached by way of the American School of Civic Design, even if the student shows a natural aptitude in these departments, for it needs the best teaching of each, supplemented by outdoor studies.

I do not say that this combined course of study and preparation is necessary for the architect in general practice on the one hand, or the landscape gardener on the other; it is, however, necessary for the practice of city planning.

If I may be permitted to draw a comparison between the professional standpoint in England and America on this subject, I would say that, while the English architect too often imagines that what really matters is a knowledge of architecture such as is demanded under the examination scheme of the Royal Institute of British Architects as a sufficient training for the man who designs both cities and gardens, the professors of landscape architecture in America, with equal sincerity, hold that an expert knowledge of scientific surveying and contouring, botany, arboriculture, traffic problems, and a proficiency in draughtsmanship are sufficient for successful city planning, and therefore neglect the study of architecture. In both cases the outlook is too restricted.

This brief and very incomplete examination of the necessary equipment of the landscape architect will show that there is pressing need for the formation of some association, not necessarily composed entirely of professional men, for the study and promotion of landscape architecture. Assuming for the moment that we are agreed that a special training is necessary and the profession an important one, can we find a sufficient number of men willing to give up at least six years to academic studies, and have we the means of imparting the necessary training? To the last question I emphatically answer "Yes," but with the lack of organisation and co-ordination, so characteristic of our British methods, great projects do not make for effective collaboration, yet these will be necessary if we are to frame any project on the lines sketched out, and if we are to utilise what at present exists.

I can quite imagine you saying that landscape architecture is something very different to what you thought it to be. Gentlemen, it covers the whole field of civic art, and therefore only those who are born idealists and who possess great tenacity of purpose can hope to gain a recognised position in its ranks.

In a country where practical instruction counts for so much it may be asked—indeed, I am often asked—what are the prospects? Of course, all admit that the profession is a delightful one, but what are the material prospects? I do not know; but this I do know, that never was a call of service stronger or the need for missionary zeal more pressing. Our heathens are at our doors. Nay, in this cathedral city of Gloucester, with its rookeries and sordid squalor, you need awakening to civic consciousness, to the value of your glorious possessions, and equally to the range of your opportunities, to the need of pleasant boulevards, green spaces, of the restoration of your river banks, so that your citizens may take their leisure uninterrupted by those constant reminders of industrialism from which we all seek to flee.

Civic art is so utilitarian in its purpose to be civic first and art afterwards; and yet, to love our city, we must make it lovely. This can only be done by awakening in the soul of the citizen that high desire for civic art which has so long lain dormant. This dormant pride can only be aroused by setting before the people a tangible vision of what their city is capable of becoming. The dream of what one's city should be and may be, and even some day must be, will be a special inspiration to those professors of the fine art upon whom the beauty of the city ultimately depends. It is the work of the landscape architect to present this dream in its most alluring form.

Mr. Mawson then showed a number of extremely interesting lantern slides, among which were a fine series illustrating his scheme for the improvement of Bolton, and a charming set of photographs showing the laying out of large private gardens carried out by the lecturer.

A short discussion followed, and a hearty vote of thanks was accorded Mr. Mawson for his scholarly and fascinating lecture.

WOLLATON HALL MSS.

THE latest volume of the Historical Manuscripts Commission is a bulky one of seven hundred odd pages, dealing with the manuscripts belonging to Lord Middleton, and preserved by him at Wollaton Hall, Nottinghamshire. The report has been prepared and edited on behalf of the Commissioners by Mr. W. H. Stevenson, M.A., editor of the Nottingham Borough Records, &c.

The principal part of the collection consists of an enormous number of mediæval and later deeds, charters court rolls, and the like, relating to thirty counties. The wide area covered is due to inter-marriages contracted by the descendants of Ralph Bugge, the founder of the family, a

Nottingham merchant living in the reign of King John. A number of the manuscripts, however, were written during the hundred years before his time. The earliest relating to this merchant family is a grant of about 1250 by Walter, prior of Worksop, and the convent, to Richard Bugge and his heirs to have a free chantry in his chapel, within his court at Willoughby-on-the-Wolds. The descendants presumably sighed for a more euphonious name than Bugge, and they took up the territorial names of Bingham and Willoughby from their Nottinghamshire possessions.

The Manor of Wollaton was acquired in the reign of Edward II., when Richard de Wylgheby, senior, was assigned eighty acres of wood and the advowson of the churches of Wollaton and Cosshaile (Chilwell). Two years later he demised to Adam, son of Nicholas, and to eight other men of Chilwell, his mine of sea coal with exemption from payment of rent when hindered from working by fire-damp.

The situation of the Wollaton district on the outcrop of the great Derbyshire and Nottinghamshire coalfield caused it to be the scene of early coal-mining, upon which considerable light is thrown by the numerous papers concerned with this industry. It is somewhat surprising, says the Editor, to find that in 1316 the workings were already so deep that provision had to be made in a demise of a pit for non-payment of the rent or royalty in case the seven miners to whom the pit was let were prevented from working by the "*ventus, qui vocatur le dampe.*" This carries the history of fire-damp three centuries beyond the earliest quotation in the "New English Dictionary." The business of coal-merchant seems to have prospered if we may judge from a statement of the charge, receipt, and delivery of coals at Wollaton week by week from October, 1597, to October of the following year, when the total value was between £2,000 and £3,000.

Another interesting item in this connection is the record of the use at the end of Elizabeth's reign of rails for the conveyance of coals to the riverside for shipment. In 1605 we find careful proposals for carrying coal by the Trent to Hull for shipment to London. But the cost of conveying the coal to Newark or Gainsborough, transhipping it there, and the freight from Hull rendered this attempt to compete with the Newcastle supply unprofitable. A few years later there was put forward an invention for an improved pumping machine for use in coal-pits in place of old-fashioned chain pumps such as were then used in London, according to the inventor, "to force the Teames water to serve there houses." The specification begins as follows:—

"An ingin to be made that shall drawe fifteene tunne of water in one hower's space at one hundred fadam depth, with this hellpe onlye of two able menne; if the depth be but fiftie fadam, one manne shall draw the haulfe of fifteen tunne of an hower. And for a cleare proofe that this may and will be fully effected, the partie desiring of such an ingin shall have a modell of it made, by which it shall be clearly manifested unto him that it will carrie or dryve the water to any height whatsoever wheare a pipe may be fixed, below, right up or sloape. The worke or ingin to be lett downe into the myne or pitt shall not be above three footte square and six footte high, to be taken in peeces and sett together agayne in two hower's tyme. Theare is a modell allredie made of wood, by which it will be made manifeste that the greate frame, no bigger yet then as aforesayed, shall worke the effect above mentioned. Theare is demaunded for the greate worke for his device and paynes only one hundred pounds after the ingin is founde to worke the promised effect, conditionally that the inginere may keepe the key of the worke himselfe, only that no other may know the secretes of it; which after it is fully fynisht, hee will mayntayne at his owne charge, beinge yearly payed fiftye pound at Michellmas and Our Lady Day by equall porcions. The charge of the greate worke at first to the partie that will sett the inginer on worke will be fortie pound, the pypes excepted, which are presumed to be in any goinge worke allredie. It is mutche wished and desired that suche an ingein may be seene in worcke, as well for the good of a (*sic*) comon wealthe as his benefitt that shall or can continuwe it."

The industry of the working of ironstone in the district was carried on at least as early as the middle of the thirteenth century. In 1275 there was a grant by Adam, son of Robert de Coshale (Cossall, co. Notts), to Henry, son of Perot of Coshale, of five "lands" (*seliones*) of land in Stenen Rydyng, and of a plot of land in which ironstone was formerly dug (*unam placiam terre in qua lapides ferri quondam fod*[*i*]*ebantur*), in exchange for the heads of four "lands" lying near the Fildy[n]ggate and abutting upon Brokeshale Milne Brok. In Elizabeth's time there were ironworks at Wollaton, Notts, in Duffield and Codnor, Derbyshire. Sir Francis Willoughby also held ironworks and collieries under Elizabeth Countess of Shrewsbury, at Oakamoor, Staffordshire, the weekly account books of the sales there being preserved from 1590 to 1600, and 1605 to 1608. The weekly charges for the iron-mills at Codnor in stone and getting coal brought to the furnaces and the labours of the "fyners" and "hambermen," *i.e.*, refiners and hammermen, &c., are extremely interesting.

The Sir Francis Willoughby above mentioned was the man who erected Wollaton Hall. Cassandra Willoughby, Duchess of Chandos, the daughter of Francis Willoughby, the natural philosopher, writing at the opening of the eighteenth century, gives the following description of Wollaton Hall:—

"The new house is placed upon a hill about half a mile from the old hall, from whence there is a very noble prospect of the country round it. One side of the house looks upon the castle and town of Nottingham; from another there is a fine view of Clifton House and gardens, the seat of Sir Gervas Clifton; from the other sides of the house there is the prospect of several houses and little villages, and each corner and middle of the house pretty near point to churches that are about two or three miles off. The house itself is a very noble pile of building, but it being less easie to describe it by writing then by drawing, I design to place at the end of this book a draught and a plan of it, and shall therefore only mention here that Sir Francis Willughby began this building A.D. 1580, and finished it A.D. 1588. The master workmen which built the house he sent for out of Italy, as also most of the stone figures which adorn the house. All the stone which it is built with was brought from Ancaster in Lincolnshire by the people who dwelt there, and who exchanged their stone with Sir Francis for his coal, which they carried back from Wollaton. But notwithstanding the stone and its carriage cost nothing but the return of cole which Sir Francis made for it, and that at that time labourers' wages was very small, yet it appears by a very particular account of the building, which still remains in the library, that the building of that house cost Sir Francis Willughby four-score thousand pounds."

The Editor of this volume says that the accounts just referred to have not been found. The figures represent in the money value of the time an enormous sum. It is suggested that there is probably some mistake either in the figures themselves or in overlooking other things in the account. Camden thought the hall was built by Sir Francis Willoughby in a foolish display of his wealth. It is not surprising to learn that Sir Francis was sometimes hard pushed for ready money, and had to borrow at ruinous rates of interest. He was, however, a very methodical man, and carefully preserved his correspondence. Under date February 14, 1585, we find an account of Thomas Grassworth, servant to Sir Francis Willoughbie, knight, of money received and disbursed towards the charge of building. He accounts for 1584 from Sir Francis £75; for 1585 from Sir Francis £371 15*s*. 6*d*. (the last figure crossed out), from John Speid £329 6*s*. 4*d*., William Blythe £106, Mr. Gedney by the hands of Mr. Smithston £35 6*s*. 4*d*., Geoffrey Fox £149 19*s*. 4*d*., and for other receipts from them £109 3*s*. 4*d*.: total (with other items) £1,192 8*s*. 6*d*. Payments to freemasons in 1584 £43 18*s*. 8*d*., in 1585 £257 16*s*. 8*d*.; to carpenters in 1584 £15 18*s*. 10*d*., 1585 £61 18*s*. 6*d*.; to joiners in 1584 £18 8*s*. 8*d*., in 1585 £70 8*s*. 11*d*.; to labourers in 1584 £19 4*s*. 0½*d*., in 1585, £91 0*s*. 7*d*.; to plumbers in 1584 £21 19*s*. 6*d*., in 1585 £17 13*s*. 2*d*.; to sawyers in 1584 £7 4*s*. 3*d*., in 1585 £18 1*s*. 11*d*.; for necessaries in 1584 £3 8*s*. 10*d*., in 1585 £15 6*s*. 10*d*.; for "lymeston" in 1584 49*s*. 6*d*., in 1535 25*s*. 3*d*.; to "layers about the buildinge" in 1584 £7 13*s*. 9*d*., in 1585 £36 18*s*. 1*d*.; to painters in 1585 £19 15*s*. 10*d*.; for twenty-two strikes of charcoal "for the fyninge of leade ashes" in 1585 7*s*. 4*d*., for carriage thereof 10*d*., for hiring and carriage of a pair of bellows 5*s*.; to William Hill for making 199 "thousand" of bricks at 2*s*. 3*d*. the thousand £19 5*s*. 3*d*., and "for castinge of earth" 20*s*.; payments to divers men, including Robert Smithston, who received in 1584 £4, in 1585 £73 6*s*. 8*d*. Total payments: £1,153 10*s*. 6½*d*.

Sir Francis impoverished himself by his building and land-purchases and by his attempts to grow woad, to make iron and glass, and, partly owing to this and to the portion left to his second wife, a mere shadow of his estates passed to Sir Percival Willoughby, his son-in-law, the grandson of Sir Edward Willoughby, who united the families of Willoughby of Wollaton and of Willoughby de Eresby, through whom Lord Middleton comes to represent the male line of the great baronial family of Willoughby de Eresby.

Building accounts of Wollaton Hall for 1582-3, 1584-5, 1586, 1587, 1588, are preserved. These consist of books of the payments of wages week by week and of other payments by the clerk charged with the payment of wages, and of statements of receipts and expenditure. They give very little information beyond the names and rates of pay of the workmen engaged upon the building. There are payments for "hewing" ashlar at Ancaster, and several payments to Smithston as imprest for task-work, but there is nothing to show, says the Editor, that he acted as "Architector" in the modern sense, as he has been said to have done on the authority of his epitaph in Wollaton church. There is, however, nothing in the accounts to disprove that he held this position. In 1587 the payment to him is said to be "to paye owte for taske worke." In September of this year there is a payment for "making a cesprey (conduit-pipe) for turning the water to the new howse, xix*d.*" In November of the same year there is an entry of "paid to the joynour of Darby by myself in parte of payment for seeling the dyning parlour, being 180 foote of measured weynskot at ij*s.* le foote, v*li.*; paid to him by my master at twoo severall tymes for the same worke, xiij*li.*"

The manuscripts give a thousand and one curious sidelights on the times in which they are written. The first owner of Wollaton Hall, for example, set out minutely the regulations for his large household, as well as the contents of the several rooms. But these constructional particulars form only a very small portion of the volume. The student of history, even more than of architecture, will find nuggets of pure gold every time he delves into the pages for information.

OUR CONTEMPORARIES FROM OVERSEAS.

THE *American Architect* (New York) illustrates the accepted competition design for the Washington State Capitol by Messrs. Wilder & White, and also the design by Messrs. Howells & Stokes which obtained the second prize in the competition. Other illustrations are of buildings erected—the Ives memorial library, New Haven, of which Mr. Cass Gilbert is the architect; and houses in Massachusetts, by Messrs. Bigelow & Wadsworth, and by Mr. Hubert G. Ripley.

The *Architectural Record* (New York) has a country house number, and gives a good series of illustrations of the most modern domestic architecture in the United States. Included in the number is an article on English garden design, illustrated by examples of the work of Mr. Thomas H. Mawson.

Der Architekt (Vienna) has for its most interesting items designs for the Ferdinand bridge at Vienna, by Professor Alb. H. Pecha and by Herr Josef Hackhofer. There are also designs of the usual new-art type and some illustrations of old work.

Berliner Architekturwelt (Berlin) is this month a monograph on the extensive restaurant and refreshment buildings recently erected at the Zoological Gardens of Berlin, from the designs of Messrs. Jürgensen & Bachmann.

La Construction Moderne (Paris) illustrates the working-class dwellings in the rue de Prague, Paris, erected at the instance of Baron Alphonse de Rothschild, and Messrs. Georges Picot, Emile Cheysson and Jules Siegfried, by the architects, Mons. Nenot as consultant, and Messrs. Provensal, Demierre, Asseline, Majou, Ventre, and Besnard.

Deutsche Bauzeitung (Berlin) completes its description and illustration of the new Rathaus at Wittenau, near Berlin, and illustrates also the new Stadt theatre at Freiburg, in Breisgau, and the new Stadthaus at Berlin. An interesting illustrated article also appears on the old town houses of Hamburg.

Het Huis (Amsterdam) contains a descriptive article on old hunting boxes and country seats on or near the banks of the Vecht, illustrated chiefly by reproductions of old engravings.

Moderne Bauformen (Stuttgart) is this month devoted to the work of architects practising in Hanover, principally domestic work, and all more or less tinctured with "neubau" feeling.

The *New York Architect* (New York), with its usual beautiful photogravures, is restricted to the work of Messrs. Hoppin & Koen, chiefly country and city residences of important size.

Engineering Record (New York) gives an account of another building in which the walls were formed of reinforced concrete in a horizontal position and afterwards raised to the vertical by screw-jacks. This is a factory building 40 feet high in Illinois.

Mr. Walter Cave, F.R.I.B.A., has been appointed by the trustees of the Whiteley Homes as their consulting architect in regard to the proposed competition for laying out the site of the homes at Burhill, Surrey.

COMPETITION NEWS.

Dunfermline.—A special meeting of Dunfermline Parish Council was held on the 6th inst. for the purpose of receiving the adjudicator's awards on the competitive plans for the erection of new offices for the Council in Abbot Street. The following was the award:—

	Probable Cost.			Probable Rental of Lettable Portion.		
	£	s.	d.	£	s.	d.
1. Plan No. II.	5,882	5	0	107	0	0
2. Plan No. III.	6,247	7	8	47	5	0
3. Plan No. IV.	5,733	0	0	44	5	0

On the sealed envelopes containing the names and addresses of the competitors being opened, the Clerk announced that the plans by Messrs. Muirhead & Rutherford had been placed first, plans by Mr. James T. Scobie second, and plans by Messrs. Ure & Beveridge third. Messrs. Muirhead & Rutherford will accordingly be employed as architects to carry out the work, and Mr. Scobie and Messrs. Ure & Beveridge will receive premiums of twenty and ten guineas respectively.

GENERAL.

The well-known spire of St. Mary's, Stamford, is to be restored, together with the tower.

A lych-gate is to be erected at the principal entrance of Wallasey Parish Church from Claremont Road as a memorial to King Edward VII.

Professor F. M. Simpson, F.R.I.B.A., has prepared sketch plans for the proposed Francis Galton Laboratory at London University. An appeal for £15,000 has been made to cover the cost of the building.

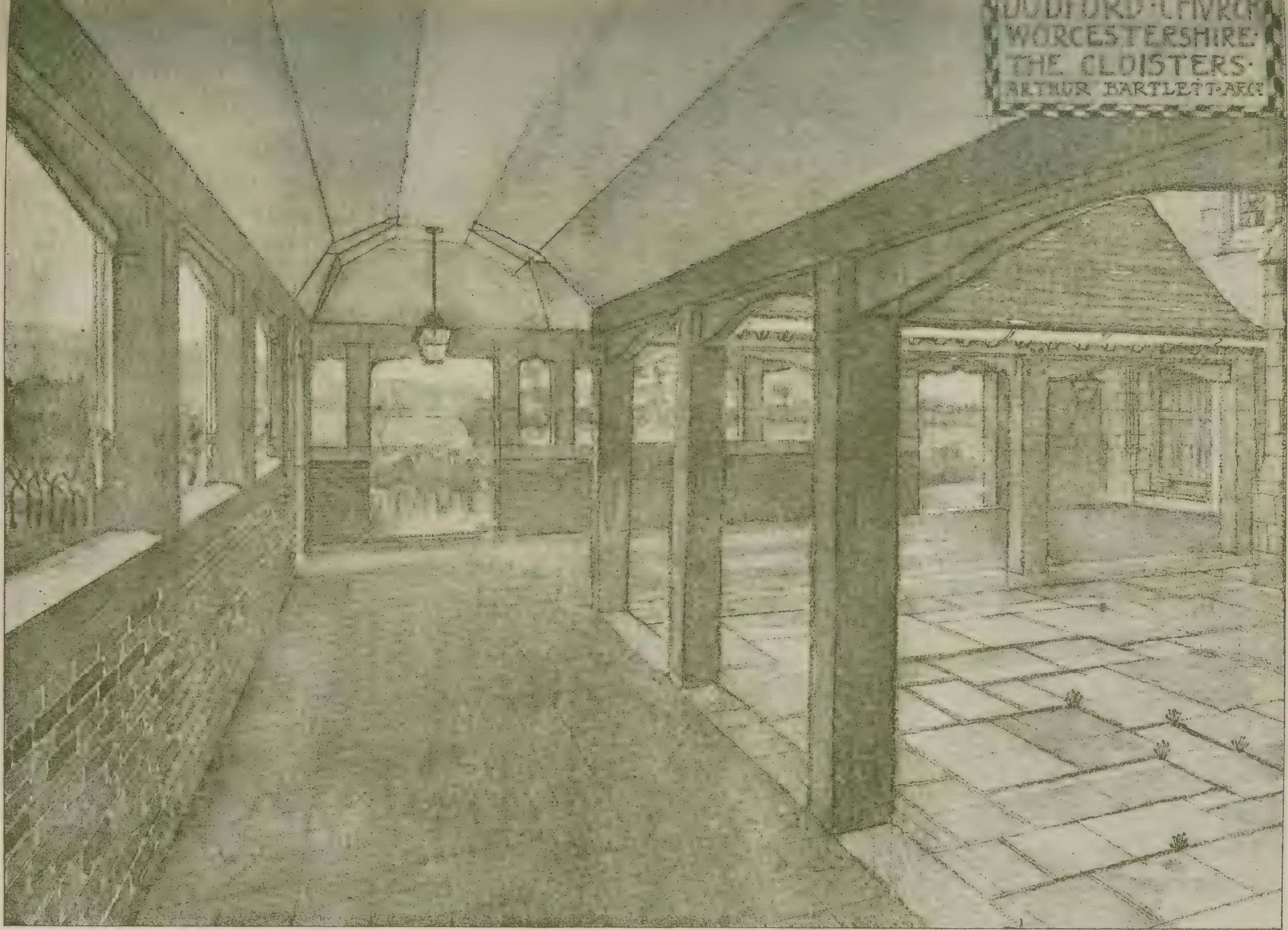
Mr. Frank W. Wills, F.R.I.B.A., is the Lord Mayor designate of Bristol. Mr. Wills was associated with his late cousin, Lord Winterstoke, in the management of the latter's estate on the Mendips, and is intimately connected with local affairs.

The City Planning Association of Winnipeg is busy with plans for improving the city and for heading off all manner of errors into which a rapidly-growing community may fall. Delegates were sent to the Municipal Congress at Chicago last month. The party will go as far south as Atlanta, Georgia, and will visit a number of cities en route, for studying ways, means, and methods.

The parish church of St. Oswald's, Lythe, near Whitby, has just been re-opened after careful and extensive restoration at a cost of more than £10,000. The new work includes a bell-tower 50 feet high, a south aisle and porch, and an extension at the west end. The church dates from the early thirteenth century. Messrs. Rudd & Co., Ltd., of Grantham, were the contractors who carried out the work under the supervision of Mr. Walter J. Tapper, A.R.I.B.A., consulting architect to the Dean and Chapter of York Minster.

The death occurred of Mr. W. F. Salmon, F.R.I.B.A., on the 7th inst. at Kilmacolm, N.B., in his sixty-eighth year. The son of the late Bailie Salmon, he followed a profession with which his family has been associated since 1820. Mr. Salmon was a member of the firm of Messrs. Salmon & Son & Gillespie, 53 Bothwell Street, Glasgow. Several of the principal modern buildings in the city have been erected to plans prepared by the firm, among these being the Mercantile Chambers, 53 Bothwell Street; the St. Vincent Chambers, 144 St. Vincent Street; and the Lion Chambers, 170 Hope Street (the first building in Glasgow constructed of reinforced concrete). A few days before his death he was re-elected Vice-Chairman of the Governors of the Glasgow School of Art.

Mr. Frank Whitmore, the present county architect in Essex, has been appointed the first whole-time county architect for Essex. The net salary has been fixed at £800 per annum; the cost of office accommodation, staff, travelling expenses, &c., to be borne by the County Council; the appointment to be determinable by either party by six months' notice, and to expire on March 31, 1914. Mr. Whitmore is permitted to retain his present appointment as architect at separate remuneration for the new county asylum as regarded buildings to be erected to plans already approved by the County Council, but all other architectural work for the Asylums Committee will be regarded as duties covered by the net salary. Mr. Whitmore will also retain his appointment as architect to the Chelmer and Blackwater Navigation Company.



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Royal Academy Exhibition, 1911.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

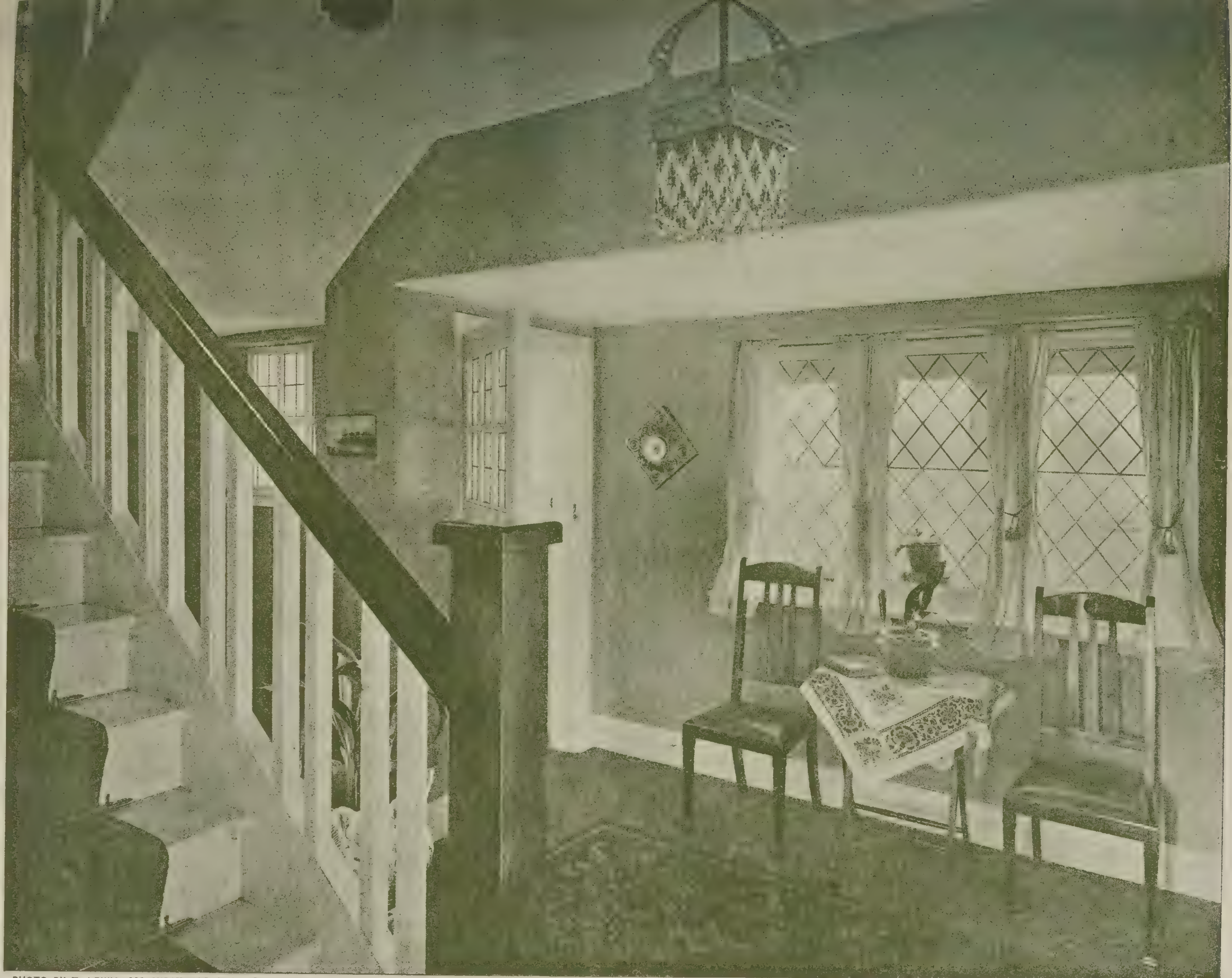

PHOTO BY T. LEWIS, 200 STRATFORD ROAD, BIRMINGHAM.

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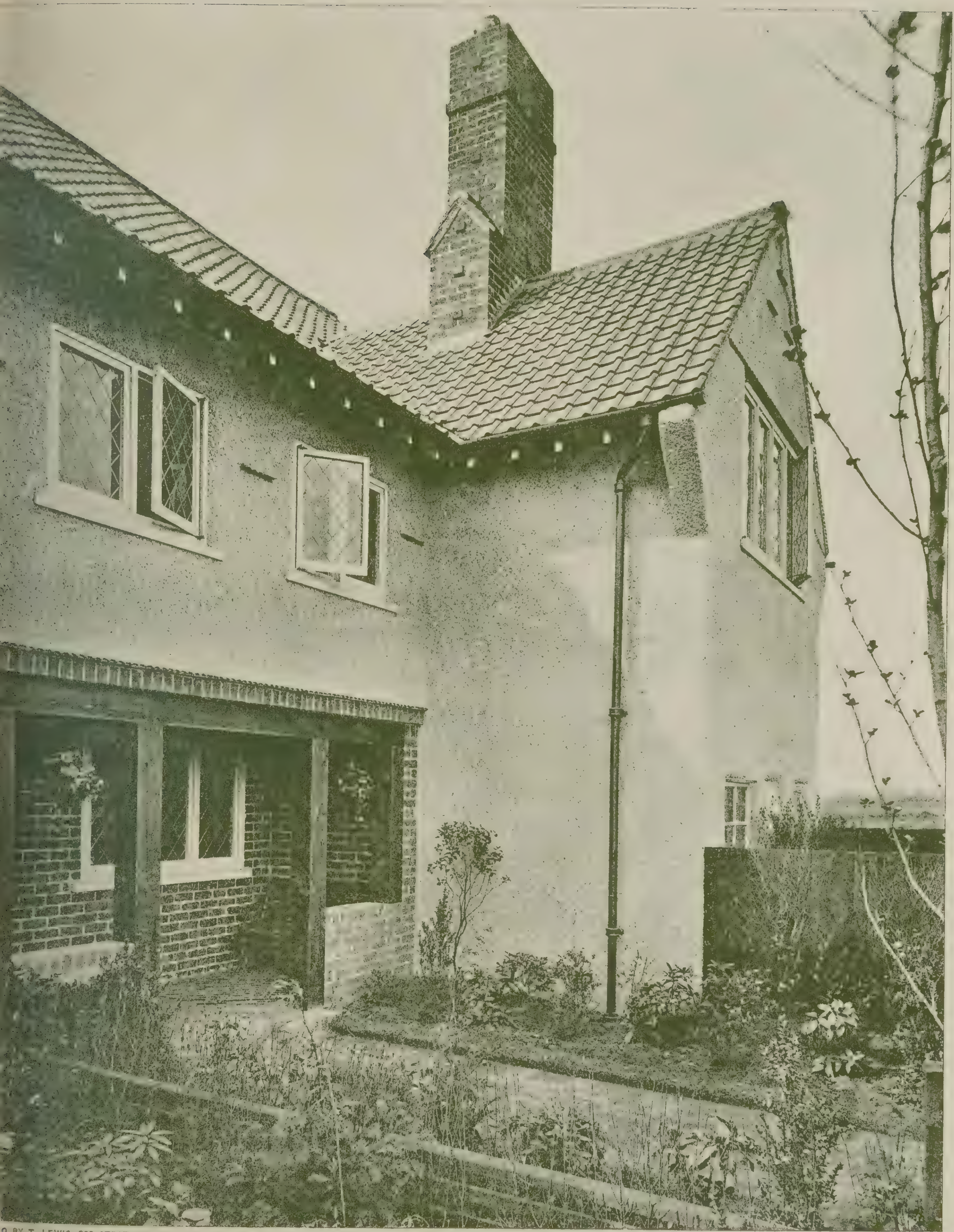
HOUSE, WALLSEND-ON-TYNE: THE HALL.

Mr. EDWARD CRATNEY, Architect.

The Architect, Oct. 13th 1911.



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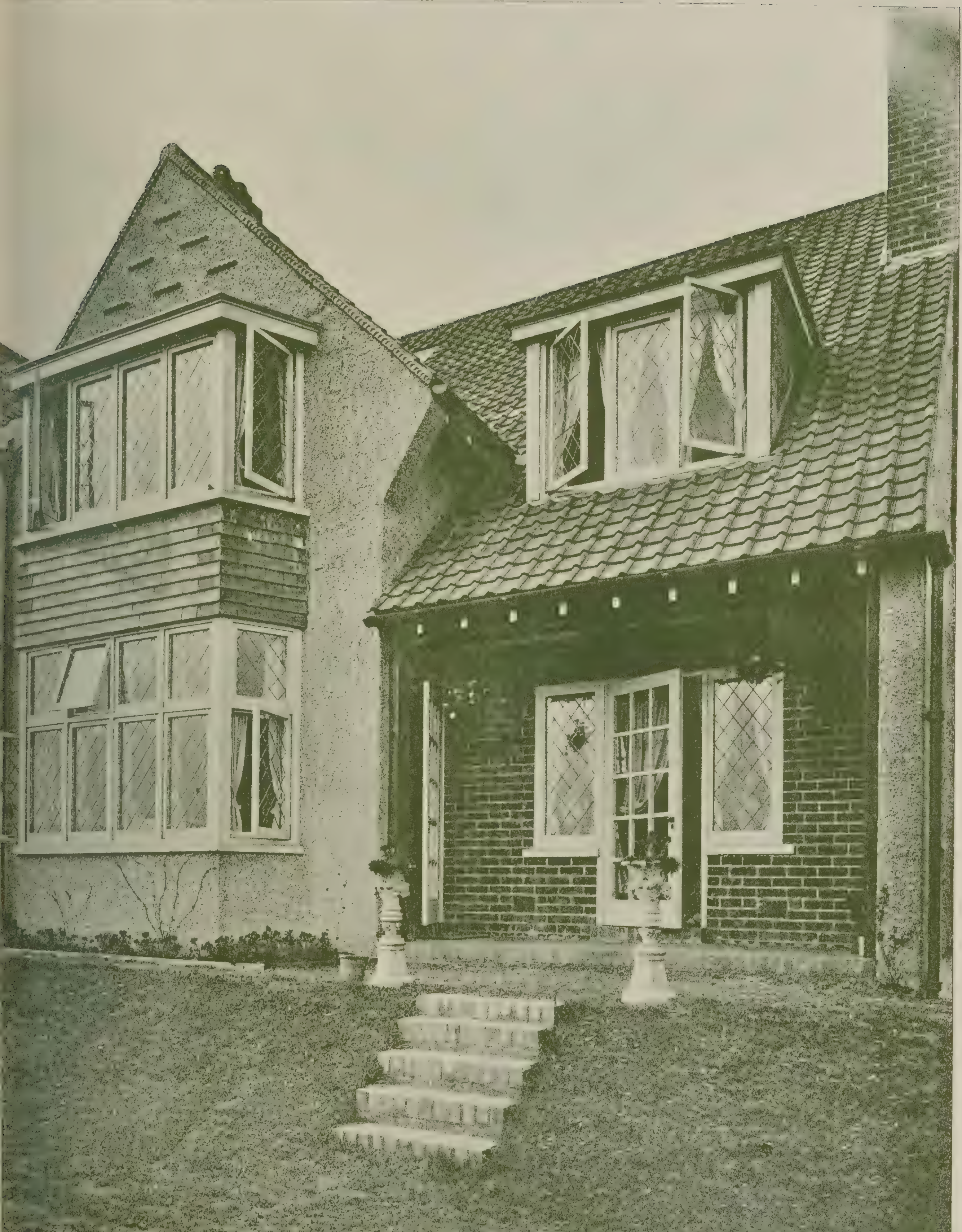
HOUSE, WALLSEND-ON-TYNE: NORTH FRONT, SHEWING ENTRANCE.

Mr. EDWARD CRATNEY, Architect.



O B. T. LEWIS, 200 STRATFORD ROAD BIRMINGHAM

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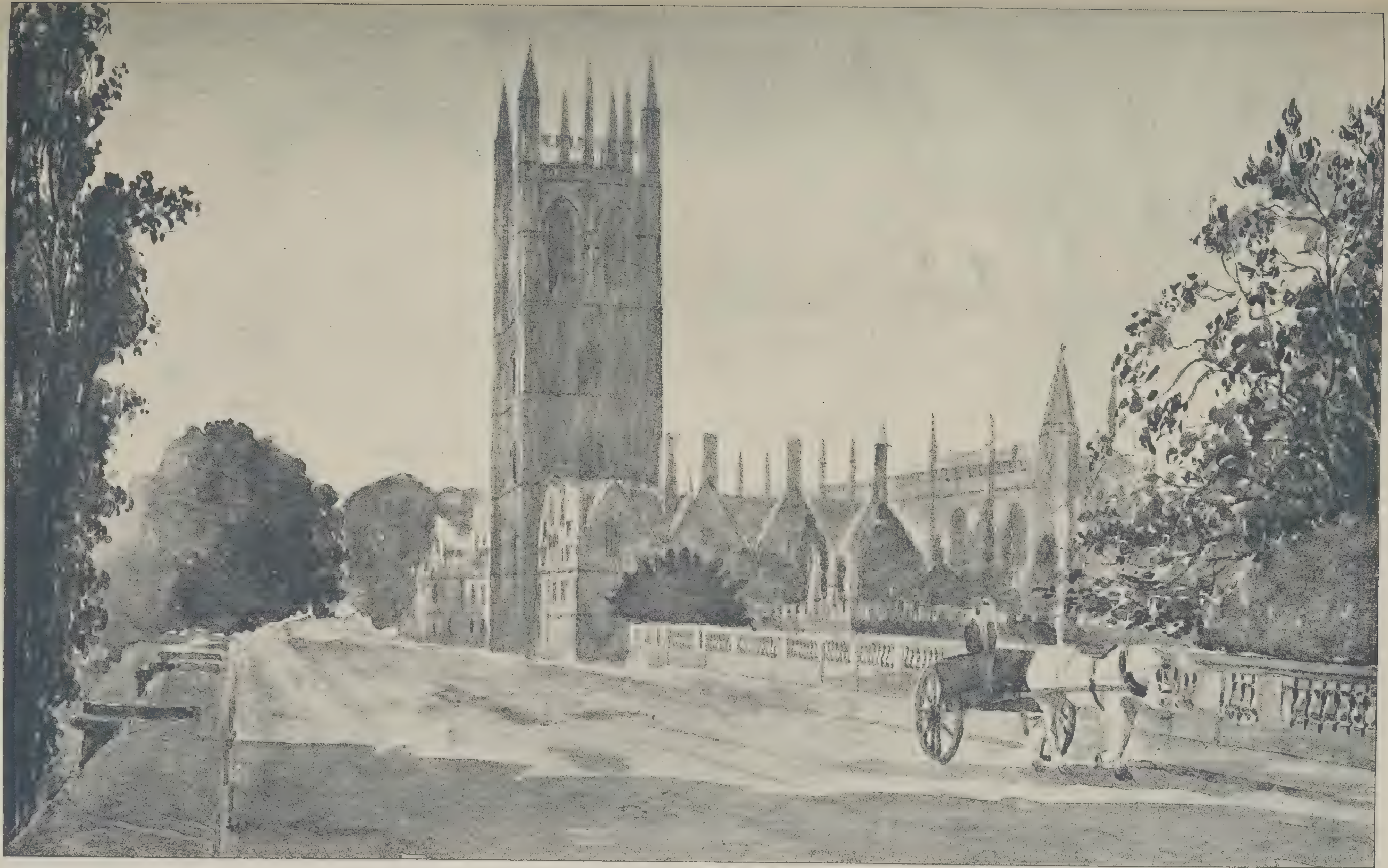
HOUSE. WALLSEND-ON-TYNE: SOUTH FRONT.

Mr. EDWARD CRATNEY, Architect.



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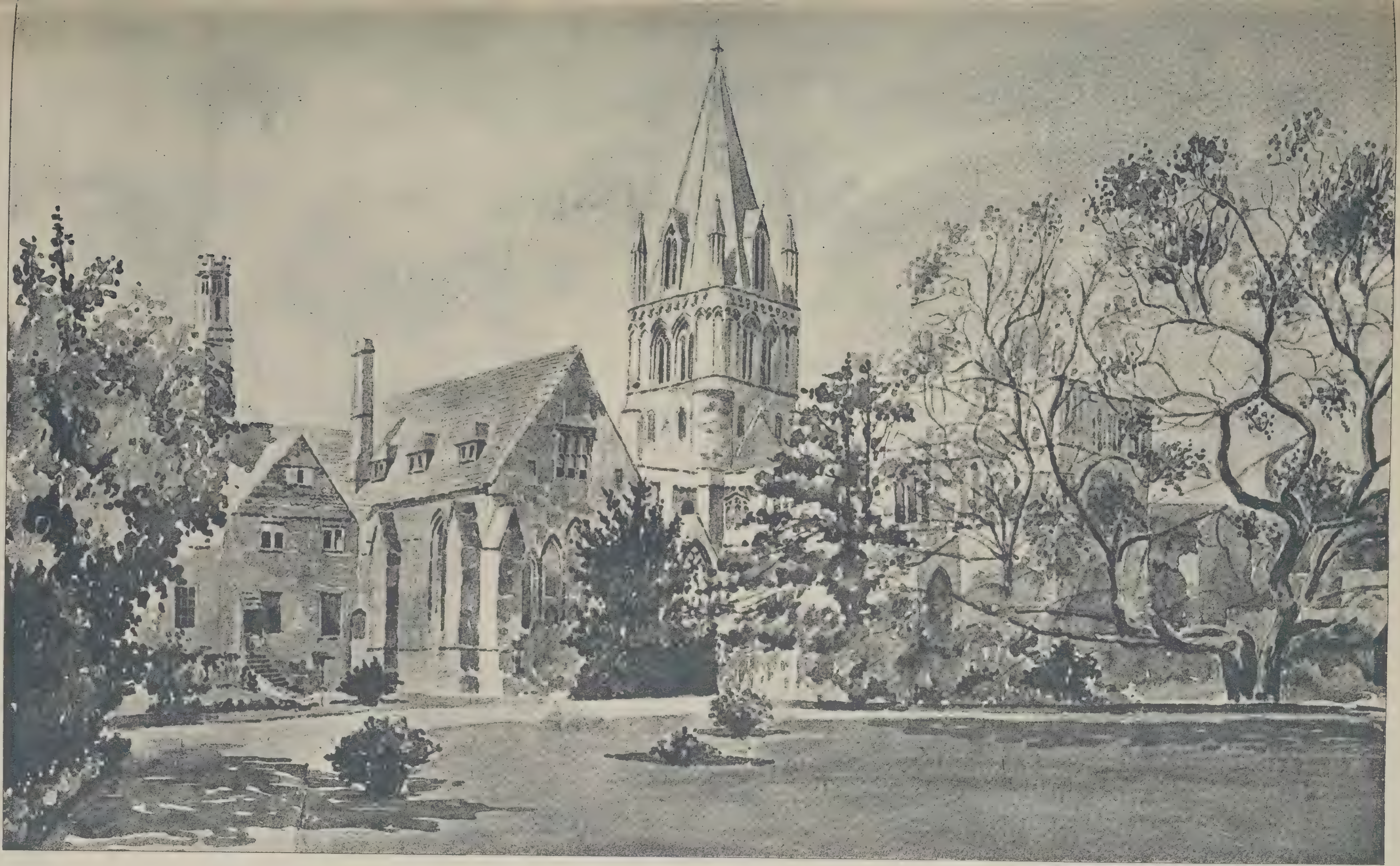
MAGDALEN COLLEGE TOWER, OXFORD: PRIZE DRAWING BY "PLATO."

"THE ARCHITECT" STUDENTS' SKETCHING & MEASURING CLUB.



INK PHOTO SPRAGUE & Co Ld 4 & 5 EAST HARDING STREET FETTER LANE E.C.

CHRIST CHURCH CATHEDRAL, OXFORD, FROM DEAN'S GARDEN: PRIZE DRAWING BY "PLATO."

"THE ARCHITECT" STUDENTS' SKETCHING & MEASURING CLUB.

The Architect.

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FORTHCOMING EVENTS.

Saturday, October 21.

Institution of Municipal Engineers : Third Annual General Meeting at Windsor.

Aberdeen Architectural Association : Paper on "Drum Castle," by Mr. W. [illegible]elly, A.R.S.A.

Monday, October 23.

Institution of Sanitary Engineers : Meeting at Caxton Hall, Westminster, S.W. A Discussion will be opened on the Parliamentary Bill on "Sewers and Drains," by Mr. Percival M. Fraser, A.R.I.B.A.

Tuesday, October 24.

Nottingham Architectural Society : Opening Meeting. Paper on "Holiday Rambles in Norfolk," by Mr. H. Gill, M.S.A.,

Architectural Association : Athletic Club Annual General Meeting.

Wednesday, October 25.

Manchester Society of Architects : Paper on "Æsthetic Treatment of Ferro-concrete," by Professor Beresford Pite, F.R.I.B.A.

Thursday, October 26.

Concrete Institute : Paper on "Fireproofing," by Mr. Richard L. Humphrey, of Philadelphia.

Guild of Architects' Assistants : Visit to London County Hall, Westminster Bridge, S.W.

THE SOCIETY OF ARCHITECTS.

FROM the twenty-seventh annual report of the Society of Architects we gather some rather interesting information which, although known for some time past to a few, is now for the first time, we believe, made public property.

The Society was founded twenty-seven years ago, we may remind our readers, for the primary purpose of promoting a Registration Bill and enlisting sufficient support to induce Parliament to make it law. The Bill has in successive years taken various forms and has on several occasions passed its second reading. It has usually been met with opposition, open or covert, from the ruling spirits of the Royal Institute of British Architects.

During the past year, however, a change has occurred, and the Council of the Royal Institute has so far modified its policy as to give effect to the general desire of the majority of its own members and to formulate the principles of a Bill which the Society, with a most commendable spirit of self-effacement, was prepared to accept in the place of that drafted by itself.

Not only was the Society willing to accept the Bill of the Royal Institute, but to further the cause of registration and to enable the architectural profession to present an united front to the outside public on the question, it was ready to merge its identity in that of the Royal Institute by accepting a scheme for the fusion of the two bodies, arranging for the election of members and students of the Society into the various classes of membership in the Royal Institute.

An agreement to this effect between the two Councils was approved by the members of the Society in terms of a series of resolutions passed either unanimously or by very large majorities at a special general meeting held on April 20 last. It could scarcely be expected that any scheme for the fusion of the two bodies would meet with the unanimous approval of the members of both, since any such scheme must in fairness entail concessions on both sides. It is not surprising that in both the Society and the Royal Institute there are some members who look askance at the concessions, and in the Institute some of these have discovered a legal flaw in the agreement which was on the eve of ratification by both the Royal Institute and the Society. To overcome this legal flaw the Council of the Institute have intimated to the Council of the Society that they propose to make an application to the Privy Council for a supplemental charter which will give them the necessary powers to enter into the proposed agreement.

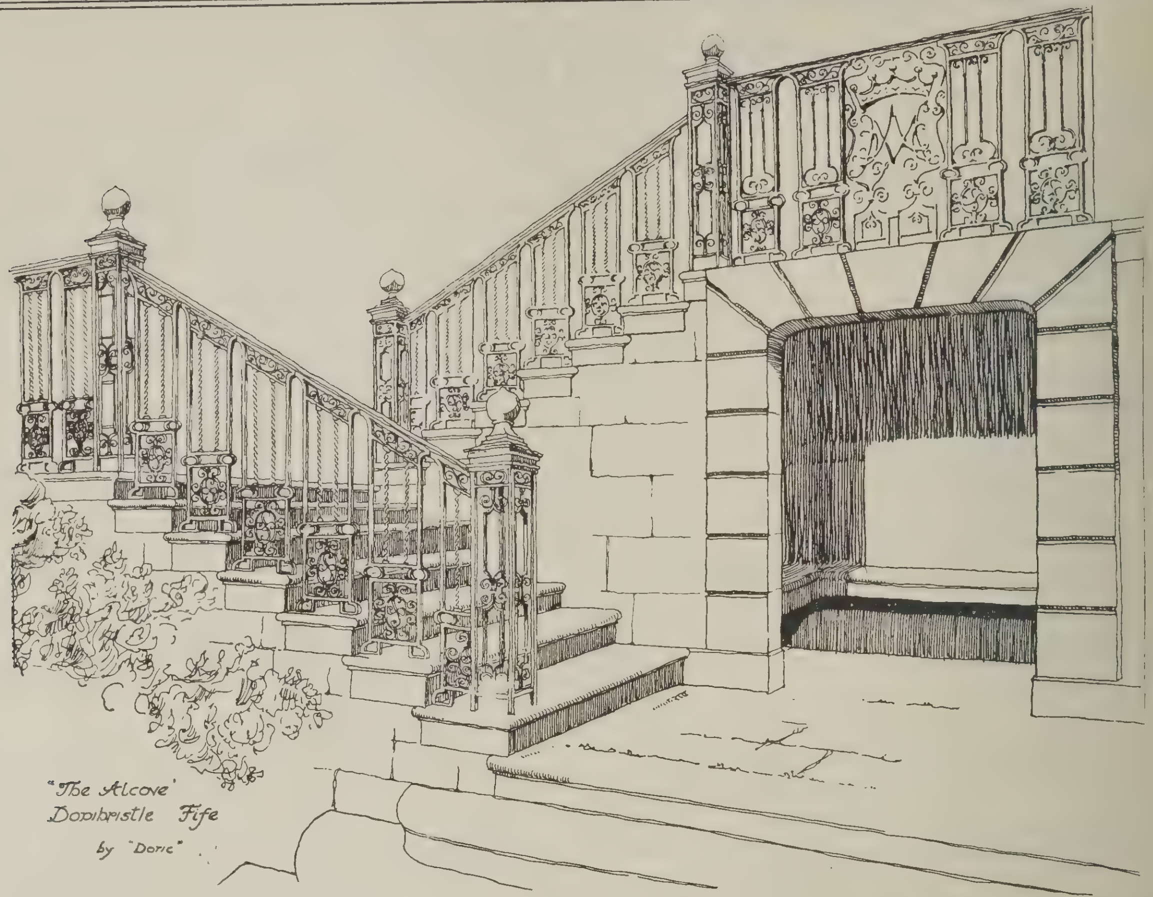
Had the proposed agreement for fusion been duly ratified by both bodies it is probable that the twenty-seventh year of existence of the Society as a separate entity would have been its last, but in view of the complication that has arisen it is only right that the Council of the Society should proceed with the usual programme of active work without reference to the negotiations still proceeding between the Councils of the two bodies.

It cannot be denied that during the twenty-seven years of its existence the Society of Architects has not only done good work in furthering the cause of registration, which was the motive for its inception, but has established for itself a well-recognised position amongst both architects and the public as a representative body of the profession. A body with a membership of one thousand and seventy-six cannot be considered a negligible element in the world of architecture, whilst in the eyes of the general public the Society bulks as largely as the Institute.

The Society has not and does not confine its energies to the propaganda of registration, but has organised all the usual machinery of a professional or learned society. It holds meetings for the reading of papers, for discussion and for social intercourse. It has formed and maintains a library. It holds examinations to qualify for membership, and that these examinations are bona fide in character is shown by the fact that the percentage of candidates who are admitted is very low. The Society also includes a student section amongst its activities, and provides for the students both instruction and prizes.

As a representative professional body the Society has, as detailed in the report, taken action and exerted influence in public affairs with which architects and architecture are concerned. In conjunction with the Royal Institute it has moved on several occasions where the conditions of public competitions have been considered unsatisfactory. The Society's Practice Committee have under consideration the preparation of what is urgently required in the architectural profession, a code of ethics in connection with professional etiquette. This is an exceedingly difficult subject to tackle, and if the Society can evolve a code which shall meet with general acceptance they will deserve the thanks of the whole profession and merit a reputation for constructive political ability which will place them ahead of the slow and tardy procedure of the Royal Institute, whose only contributions to the subject up to the present are a few rather ludicrous resolutions of the Council.

Other public matters in which the Society has exercised its influence are the proposed alteration of the podium



"The Alcove"
Donibristle Fife
by "Doric"

of St. George's Hall, Liverpool; the procedure of the Ecclesiastical Commissioners in issuing detailed designs for parsonage houses, together with specifications and bills of quantities; and the Copyright Bill now before Parliament.

The Society has been able, as the result of good management and business ability, to provide itself with a permanent home, and has satisfied the auditors of the Royal Institute that in the event of the Society becoming merged in the older body there would be an ample margin of assets over liabilities.

Thus we think the Society has shown that it contains members who would be an acquisition of considerable value even to the chief representative institution of architecture, the Royal Institute of British Architects.

NOTES AND COMMENTS.

Manchester looks foolish in the light of the latest resolution of the City Council, passed by the narrow majority of 63 to 55 votes: "That it be referred to a special committee to be this day appointed to consider and report upon the expediency of (1) purchasing the Manchester Royal Exchange undertaking and adapting the existing building for use for the purpose of a free reference library; (2) building upon the Piccadilly site a municipal exchange that would not only fulfil the present and future commercial requirements of Manchester as a great industrial centre, but also make provision for the establishment of a 'spot' and 'futures' cotton market; (3) and that all existing resolutions of this Council which are inconsistent with the foregoing objects be suspended (except for the purpose of carrying out or completing obligations which have been entered into)." The site on which some members of the City Council now wish to build an exchange is that for which many architects have spent many months in trying to fit too much accommodation as required by the particulars of the competition for an art gallery and reference library.

The City Council of Manchester have played the fool with architects by inviting them to enter into a competition for a certain building, allowing the competition to go through all its stages till the award of the assessor has been made, and then putting the whole thing on one side in favour of another scheme. Moreover, the Council by promoting an abortive competition have wasted thousands of pounds of the ratepayers' money, and we shall hope to see the members of the Council surcharged by the auditor with the money wasted.

Manchester men have usually been considered by the rest of the Kingdom to be hard-headed, shrewd, and business-like. Now they seem to be governed by the present-day successors of the wise men of Gotham. The joke of the whole thing is that whilst the decisions of the Manchester City Council seem to be as stable as a weathercock, the members of the present Royal Exchange do not want to go to Piccadilly, but, as we noted a fortnight ago, have resolved to seek Parliamentary powers to enlarge their present premises.

The scheme of the London County Council for the utilisation of St. Paul's Bridge to assist the connection of the tramways north and south of the Thames has now been formulated by the joint report of the Highways Committee and Improvements Committee. The serious part of the proposed scheme is the part of the tramway line between Cheapside and the south side of Cannon Street, of which 243 yards will be underground and 130 yards in open approaches thereto, whilst an underground station is to be constructed at St. Paul's Churchyard. The exact details of this scheme must be carefully watched by all who desire the continued existence of St. Paul's Cathedral. There is no question that it may readily be a very dangerous thing to make this subway and underground station at the east end of the Cathedral, but until definite figures of depth and distance are forthcoming, the exact magnitude of the danger cannot be estimated.

There is something to be said for the point of view taken by the Duke of Rutland in his letter to the *Times* on the proposal for legislation to protect ancient monuments. His lordship writes from the standpoint of an owner of ancient monuments and objects that these should be scheduled and the owners prohibited from selling without permission from an Inspector of Ancient Monuments, " and then if leave to sell be granted, presumably an ' official ' price is to be placed on the said monuments, a price probably one-half that which could be got in the market. Moreover—and this is, indeed, a piece of massive impudence—no structural alteration is to be made in any building scheduled by the body appointed for this purpose, except with the sanction of the Inspector of Ancient Monuments! Fancy my not being allowed to make a necessary alteration at Haddon without first obtaining the leave of some inspector, probably totally ignorant of the requirements of the case!"

It must be admitted that it would be unjust to prevent the owner of an ancient monument from selling it if he could not afford to keep it or even if he wished for any other reason to sell. Nor would it be right that the owner should be forced to sell, as the Duke presumes, at "a price probably one-half that which could be got in the market." That this is to be the footing on which ancient monuments and their owners are to be placed by legisative enactment is, however, pure presumption on the Duke's part. But it would be quite another thing for the State to have the prior option of purchase at a fair valuaion. It is a well-established principle of English law hat any owner of property may be compelled to sell to a railway company, a borough council, or anybody else who can obtain Parliamentary powers, but at a fair price.

It is a little difficult to decide rightly between the ights of property in ancient monuments and the interests of the nation. If the Marquess of Lansdowne says that he is hard up for cash and that he has a picture by Rembrandt for which he is offered £100,000, it is obviously unfair for the State to say, " We won't give you as much as you can get in the open market and you must not sell to anyone else." On the other hand, if every owner of an old master or ancient monument were in a position to oblige the State to purchase his property at present market values, the national debt would speedily be doubled.

We cannot agree with the Duke's objection to the prohibition of structural alterations to ancient monuments without permission. Such alterations have too freuently been made in the past, with the result of great epreciation of the value of ancient monuments, and preumably any Inspector of Ancient Monuments who might e appointed would be an expert who could give sound dvice as to the wisdom and necessity of any structural lteration.

We are rather amused at the suggestions that have een made by the Cardiff City Engineer (Mr. W. Harpur) or the improvement of the acoustic properties of the Council Chamber and Law Courts, and at his opinion that he difficulty of hearing distinctly in the rooms menoned was largely attributable to the ventilating ducts rawing off the sounds, with a confession that he did not see how this was to be avoided. Experiments with uspended canopies, curtains, and Union Jacks seem to e all that Mr. Harpur could suggest. These expedients re palliative in certain cases, but they do not go o the root of the acoustic properties of a room, and from he tone of Mr. Harpur's report it does not appear that e has any great confidence in the result of the experiments he suggests; so that we are not surprised that the ommittee decided, for the present, to adopt only the uggestion with regard to the Council Chamber, and this y way of experiment. The Police Courts and Wreck ourt will remain as they are for the time being.

That trial holes are not necessarily always reliable is fact that many architects have found by experience to e real, and has been illustrated by what recently occurred at Tamworth in carrying out works for sewage disposal. The site was chosen not only because it was convenient for the works, but the subsoil and nature of the land generally were believed to be very suitable for the purpose of outfall works. Trial holes were got out under the direction of Mr. H. J. Clarson, one of the engineers, and these were inspected by Mr. Midgeley Taylor, consulting engineer, and by Major Norton, an inspector of the Local Government Board. The site was approved by the Local Government Board. Sand and gravel were found in the trial holes, but when the contractor commenced excavating for the tanks and filters, to the surprise of everybody concerned, sand and gravel were practically absent.

Dr. Bostock Hill, in his presidential address at the annual meeting of the Society of Medical Officers of Health, touched on the popular idea of the ordinary householder that " the drains " are the alpha and omega of sanitation. He said that the first association in the public mind of the medical officer of health was with what he termed " drain-pipe hygiene." He held that one of the first steps in the urgently-needed public education was instruction in what they now knew to be the real important work of public health. This was rendered somewhat difficult because the public still clung to the old idea that everything hygienically bad was due to sewer gas, and that drains in some way or other were at the bottom of all the sanitary evils which flesh is heir to.

Although it would seem that the erection of the Victorian Government building had quashed the possibility of carrying out the suggestion of the Further Strand Improvement Committee, that body has taken heart of grace from the continued vacancy of the " hole to be let as a sight " and have resuscitated their proposal, backed by a valuation from Messrs. Southon & Robinson, who, on the presumption, which seems justified, that the County Council's estimate of value is excessive, now estimate the value of the land to be surrendered, according to the Committee's proposal, 10,930 square feet, at £93,525, instead of the figures contained in the report of the Improvements Committee of the London County Council, £239,400. To Messrs. Southon & Robinson's valuation must be added the cost of reinstatement of the Victorian Government, but the Committee's proposal is worthy of reconsideration by the London County Council in the light of experience.

A single year's experience of the operation of the Finance Act has most fully justified all the adverse criticisms of its political opponents and of the Land Union. The capital value of all the land in the country has been directly depreciated. Mortgagees have been frightened into withdrawing their loans and refuse to grant new ones. The effect of this tendency is to make it most difficult for builders to carry on their business, and many have been ruined and their workmen deprived of wages. Owing to the suspension of building operations rents are already showing a tendency to rise, especially in the case of small houses and cottages in urban districts. The trouble and expense cast upon land and house owners (especially small proprietors) has been incalculable. After all the work of valuation so far, not a thirtieth part of the whole has been accomplished, and practically no revenue has accrued to the State, while the expenses are enormous. The basis of valuation is admitted on all sides to be utterly impracticable, and a large number of the valuations already made are liable to be nullified as the result of appeals. Nothing but the sheer complexity of the Act keeps it on the Statute Book for a single hour, and the new land taxes are clearly doomed to an early death. The valuation, if ever completed, will be valueless. No one stands to gain sixpence by the Act except those who are paid salaries to keep it in operation—the printers and stationers and the professional men employed to unravel its difficulties.

In connection with Mr. Prior's series of lectures (p. 230) the following charts have been prepared which indicate the general lines on which he will deal with the subject of English Architecture.

CHART I.

CENTURIES.	DATES, A.D.			TITLES.		CHIEF AIMS OF BUILDING.	CHIEF FEATURES OF CONSTRUCTION AND DECORATION.	
VII	600	ROMANESQUE	SAXON	Early or "Anglian"	SMALL CHURCHES. REFUGE TOWERS.	Symbolical stone-carving in relief chiefly upon crosses.	Scroll and knot sculpture.	600
to	to			Mid or "Irish Viking"				to
X	950						Limited attempts at the copy of Roman fabric.	950
	1000			Late or "Wessex"		Planning of small "Parish" Churches with Porches, Transepts and Towers.	Pilaster strips and mid-wall shafts.	1000
XI	1050		ANGLO-NORMAN	Early or "Norman"	ABBEY CHURCHES. LANTERNS.	Planning of great "Monastic" Churches with Lanterns and simple Apses.	Massive unadorned Masonry decorated with painting of Sacred subjects.	1050
	1100			Mid or "Cluniac"		Development of the rib-vault with enlarged Apses.	Sumptuous structures with elaborate painting and rich sculpture.	1100
XII	1150			Late or "Reformed"		Enlarged fenestration with square ended Quires.	Structural simplicity, disuse of decorative carving.	1150
	1200	GOTHIC		Transition		Lightening of fabric.		1200
			GOTHIC	Early English	CATHEDRALS. SPIRES.	Concentration of thrusts. Planning of great Quires with Chapter-Houses and Lady Chapels.	Purbeck-Marble and White-Stone Masoncraft, shafted piers, moulded ornament, functional structure, developed vault, pointed arch, lofty gables and windows, flying buttresses, pinnacles.	
XIII	1250					Development of abutment.		1250
				Mid Gothic		Elimination of Wall. Variety and decorative shaping of construction.		
	1300			Decorated		Elaboration of Chapels, Chantries and Monuments with Screens.	Sculptured ornament, elaborate traceries and vault-ribs, rich colouring, much statue-work.	1300
XIV	1350		PERPENDICULAR	Early or "State"	AL CHAPELS, PARISH URCHES, BELL-TOWERS.	Planning of Royal and Collegiate Chapels.	Development of panelling in walls, windows and vaultings.	1350
	1400						Architectural ornament with detached Statues and decorative painting.	1400
XV	1450			Mid or "Vernacular"		Planning of great Parish Churches with Aisles and Chancels, and Guild-Chantries.	Repetition of detail, variety of local use, advance of Carpentry, elaboration of wood ceilings.	1450
	1500					Planning of Colleges and adaptations to	Lowerings of Arches, flattening of Ceilings, disuse of Tracery.	1500

600	Borrowed motives of sculpture	OFF-SHOOTS FROM	The Arts of the East	MISSIONARY	Greek Ecclesiastics with Greek Artisans	"CONVERSION,"
to	Decadent execution with barbaric motives		The Scandinavian Arts			
950	Elegant Masoncraft with non-constructive fabric		The Othonian Renaissance		Native Ecclesiastics with Native Artisans	466 years to
1000			German influence			
1050	Constructive vigour of Masoncraft	PART OF THE CONTINENTAL ART.	Sharing in the Monastic developments of the Arts in North-West Europe	ECCLESIASTIC	Norman Ecclesiastics with imported Artisans	"CONQUEST," 1066.
1100					Anglo-Norman Ecclesiastics with Native and Foreign Artisans	
1150	Gradual emancipation from Classic origins First in structure		In alliance with West France		English Monks and Bishops employing and organising travelling Masons	142 years to
	Then in ornament		In alliance with the Architectural development of North-East France			
1200	Direct exhibition of construction with ornament taken from natural subjects worked in the fabric of the building	INSULAR BUT IN TOUCH WITH FRENCH	Rejecting French forms of detail		Churchmen as Clerks	"INTERDICT," 1208.
1250			Admitting French forms of detail	MECHANIC		
1300			Creating forms which reacted on French style		Masons as Builders	141 years to
					Kings and Nobles as Employers	"BLACK DEATH," 1349.
1350			100 years war			
1400	Gradual overlay of construction by constructional ornament with detached sculpture and accessories	INSULAR & INDEPENDENT OF CONTINENT.		CORPORATE (GUILDS)	Masons under Officials	
1450			With no influence on Continental styles but exporting Church furniture, retables and tombs			
1500					Masons under Squires and Merchants	190 years to
1550			Flemish and Italian influences		Masons independently contracting with all Classes	"DISSOLUTION OF MONASTERIES," 1539.

ENGLISH MEDIÆVAL ARCHITECTURE.—I.

THE Carpenters' Company have again arranged a course of public lectures on architecture at University College, Gower Street, W.C. This year the course is to be given by Mr. Edward S. Prior, F.S.A., F.R.I.B.A. The opening lecture took place on Thursday, October 12.

Mr. Prior explained in his introduction that he proposed to deal with the architecture of mediæval England on the side of style and construction—as a series of facts in style and as a series of developments in building, rather than as a great drama or romance. The word "style" in art was often used as an indefinite summary of merit, as if it labelled a distinct essence only distilled by the magic process of genius. Various definitions had been promulgated to include English examples of Romanesque and Gothic in the roll of honour understood by those titles. But those examples cannot be walked around, measured, and specified as if they were objects in three dimensions. Romanesque and Gothic were rather progressions than things; as it were, cavalcades of the arts dancing in one long company, winding this way and that, but with the light of a great purpose always in their eyes. That purpose—the ideal of church-building—made the spirit of their art, and it is now extinct. The production of the modern stylist, however exact to definition it may be, is only a stage effect, for it cannot revive the original passion.

Mr. Prior said his point was to regard "style" as an historical and local fact, not as an abstract expression of idealism. In the former sense it is a selective catalogue of features, a surface estimate of the result of forces and actions in building for the length of time when such forces and actions remain comparatively stable. When there comes a revolution or a crisis new forces emerge, a new surface estimate of their effects has to be made, and a new style is conceived. Style may be called the summary of an architecture as an art; but underlying this there are the constructive habits of that architecture which may be called its summary as a science. It is this science of construction which puts its life into the style and serves as the drums to which architecture marches. Yet, like a deceitful cloak, style may misrepresent the facts of construction.

Styles not only differ by the differences of the constructive habit, but also in the degrees in which they clothe those various facts—either exhibiting them and disclosing their structure, or overlaying them and hiding that structure under adventitious ornament. The chief aims and the chief qualities of building varied during the several great eras of mediæval architecture in this country, where each stretch of twenty years developed fresh aims of building, fresh qualities of style.

Among the various great architectures of the world, that of the mediæval artist shows itself as most closely fitted on construction. It exhibited throughout the anatomy of building directly. In other words, the art of the Middle Ages lay immediately in its science of construction.

This prime distinction must not be put on too narrow a basis, for the building art is a complex thing, with many ideas and conditions contributing to its activities, and with many requirements which must be met before the efficient building is produced. The joint dependence of architectural expediency on both the material and the spiritual conditions exhibit its life. Form appeared to the builder as immediately developed out of the building, as a necessity created by material. At first the relations were very simple; later they grew complex. But there is no break in the continuity of Romanesque and Gothic, for Romanesque was always Gothic in the making, and Gothic was always Romanesque carried on to the ornamental solution of the problems that Romanesque started to solve. It is for the purposes of survey alone that the pageant of mediæval style must be divided up into sections.

The Continental method of dividing architecture into centuries makes bad categories of English style compared with the descriptive terms of Saxon, Norman, &c., given by Rickman. The mischief of the latter has come from the desire to make periods of style where Rickman only indicated divisions. For example, the Revivalists stretched the term "Decorated" to cover with a special glory all the English architecture from 1260 to 1360. In view of this particular misuse, Mr. Prior suggested a middle term, like "Mid-Gothic," between "Early English" and "Decorated." Such nicknames as "First pointed" or "Lancet" are trivial, since architecture was considerably more than the shapes of arches and windows, and no correctness or canon of proportion was possible in mediæval building. The grouping of forms together as necessary to one another is alien to the mediæval spirit, and to make a "correct" architecture out of it was incorrect. Experiment—that is to say, rejection of canon—made the life of mediæval architecture; there was a habit and custom of masonry, but never a canon of art.

The essential fact was growth by experiment. But in this experiment the central idea upon which it continually turned may be noted, and also a series of secondary ideas succeeding one another and superseding the previous expressions as the course of architecture proceeded. The central idea which was responsible for mediæval architecture was stated by Mr. Prior to be "the building of a hall of a particular kind—that is, a church which should endure, a church that should be the largest, the most open, the best-lighted—in a word, the most convenient for the purposes of a collection of people for worship and ceremonies sheltered from the weather." One of the specific creative conditions was that the church should be rendered fireproof by being roofed in stone. Stone itself was a precious thing, owing to difficulties of carriage. It had to be conveyed in small pieces, and usually by water. Yet with these small pieces of stone the large churches demanded by religious fervour had to be built and vaulted. Thus the working principle of mediæval architecture modelled itself into the aim of working stone so as to spread it to cover the biggest spaces with the least material. Masonry became a fibrous webwork of little stones, each piece functioned to take its part to the utmost in the enclosure of space. Stone was the jewel, and in its cutting the art of the cutter had to be magnified. Step by step Gothic moulded secondary (or decorative) features of style out of its construction, until the functional offices of stone sculpture began to lose their purity, and finally became lost altogether when classical learning deemed that the elements of form were not building expediency but classical taste.

There seems to be no ground for supposing that either the rejection of Classic and Byzantine forms in Romanesque, or the creation of mediæval details, was due to artistic efforts or to fancies in designing, or to any theory of the beautiful. The extraordinary massiveness and unadorned simplicity of Anglo-Norman building, argued Mr. Prior, are traceable to the wealth of the Benedictine Order, the assistance of large bodies of Saxon serfs uneducated in masoncraft and capable only of walling in great masses, and also to the desirability of large, plain surfaces for the monastic painters. The square east ends and unadorned fabric of the Transitional Gothic grew not out of design but out of the poverty of the reformed monks. The shafted piers of Early English and its multiplied mouldings were the result of small pieces of Purbeck marble and Caen stone only being available. The wide windows of English Decorated arose out of experiments in filling the large east walls with the least stone. The Perpendicular repetition of oblong upright panels covering walls and windows seems just like a shop-device of a firm who had to cheapen monuments.

In the concluding part of his lecture Mr. Prior discussed the Continental relations with English architecture, and the personality of those responsible for the forms which architecture took. Pre-Conquest architecture was in the hands of missionaries whose connections were at first immediate with Eastern Christendom. Upon the Conquest, Romanesque building became cosmopolitan, thanks to the Benedictine domination; later, the Austin Canons and the Cistercians supplanted the Cluniac influence. The third chapter of the English art was put at from 1200 to 1349, when the position became reversed and Normandy began to learn from England. The final chapter, after the Black Death, Mr. Prior labelled as distinctly insular and peculiar to England. The existence of authoritative designers in mediæval building-craft must, he contended, be open to the utmost doubt. The religious caste and the mechanic class may be both justly entitled the authors of the buildings of the Middle Ages.

THE ARCHITECTURAL ASSOCIATION.

A COMBINED ordinary general and Camera, Sketch and Debate Club meeting of the Architectural Association was held at Tufton Street on Monday last. Mr. Gerald C. Horsley, F.R.I.B.A., President, occupied the chair.

It was announced that the next meeting of the Camera, Sketch and Debate Club will be held on November 2 (Ladies' Night), when a paper is to be read by Mr. Edwin Gunn, A.R.I.B.A., entitled "Woman as a Domestic Architect." The Athletic Club will hold their annual general meeting on October 24. The President read out the names of thirty-five candidates for membership, all of whom were duly elected; also the reinstatements of Mr. A. E. Richardson and Mr. C. L. Gill. A vote of thanks was passed to Miss Nicholl for presenting to the A.A. two model roofs and some pieces of nediæval woodwork and ironwork. Mr. F. C. Eden was nominated to fill a vacancy on the Council.

Mr. Arthur Keen, F.R.I.B.A., Treasurer, proposed the adoption of the balance-sheet and Council's report for ession 1910-11. This was seconded by Mr. W. Curtis Green, and carried.

A vote of thanks was carried with much applause to Mr. D. G. Driver, the Secretary, and his staff for their work.

Mr. Raymond Unwin then read the following short paper, ntitled

Town Planning: Formal or Irregular?

The subject of the discussion which you have done me the honour of asking me to open to-night is one both deep in ignificance, for it goes to the root of all town planning design, and difficult of solution, for it opens up the whole problem of convention in art, as to which a controversy as ld as art criticism has invaded every form of design from portrait-painting to gardening. I am not qualified to deal conclusively with so wide a subject, nor do I feel able to put efore you a simple advocacy of either the formal or the rregular in town planning, which perhaps might have been he easiest way to open a discussion. If we were to interpret he two views in such terms as some of the extremists on each ide make use of it would be fairly easy to put a strong case gainst either party. Those who say that the town plan hould consist entirely of straight streets and square places ymmetrically arranged upon an axial line, pretty obviously gnore both the economic necessities and the great architecural opportunities which spring from the fact that the site pon which the plan is to be carried out has in England, in ine cases out of ten, an undulating surface, and contains many marked features of an irregular character. On the ther hand, those who maintain that because the site consists f hills and hollows, and is marked by winding streams and evious highways, uplands with ragged edges, and the andom boundary lines of private properties, it is therefore nnatural and out of harmony with the site to plan straight treets or lay out symmetrical groups of buildings, seem, on he other hand, to neglect altogether the legitimate function f human design and the application of architectural priniples natural to a work so intimately connected with archiectural expression as that of town planning.

Unless the extreme formalist is prepared to depend upon igantic feats of engineering to provide for him a sufficiently ormal stage for the display of his design, however formal he may make it on the paper plan, many sites will play unexected pranks with the lines of his elevations. In fact, we annot, if we are to obtain any success, think of town planning s the creation of a pattern in two dimensions, but must ecessarily think of it in three. The formalist will admit hat on an undulating surface many of his straight lines will lways be seen as curves, and I cannot conceive any valid eason why he should not curve these lines on plan if by o doing he can secure a horizontal line for his elevation—a matter which may be of vital importance to the formal effect e aims to produce.

This line of argument seems to give an opening to the dvocate of the irregular school to come along and say: What is this formalism and symmetry, anyway? Is it nything but a mere conventional rule to make it easy for he unimaginative mind to produce harmless designs? What ossible justification is there for limiting the design to the ymmetrical, the straight, or the square?" He has studied he lines which have pleased him in the world around, the weep of the seashore, the outline of the mountain slope, and he subtle forms of leaves and flowers, as seen foreshortened n their natural state, and has found no formality. True, he ust admit some degree of symmetry in the balancing of parts f the bodies of men and animals, but he will urge that this s always associated with an extreme degree of subtle odelling with some inexactitude, and that the symmetry of odily form, except, perhaps, when laid out in death, is lways modified by the want of symmetry of the pose in which t is seen.

If, on the strength of this, he argues, "Why should I not ave for my design the same freedom that I see in these orms around me?" I am not sure whether here we have not tumbled on the essential fallacy of this point of view, the dea that the free exercise of fancy uncontrolled by any preision of purpose or law of proportion is the natural basis or the highest type of design in all branches of human ctivity. John Ruskin is not always accepted nowadays as safe guide in all matters of architectural art, but I should ike to quote what he says about that idea of liberty which regards it as meaning the right to do what we like. He says in "Seven Lamps":—

"Nor is it the least among the sources of more serious satisfaction which I have found in the pursuit of a subject that at first appeared to bear but slightly on the grave interests of mankind, that the conditions of material perfection which it leads me in conclusion to consider furnish a strange proof how false is the conception, how frantic the pursuit of that treacherous phantom which men call liberty—most treacherous, indeed, of all phantoms, for the feeblest ray of reason mighly surely show us that not only its attainment, but its being was impossible. There is no such thing in the universe. There can never be. The stars have it not, the earth has it not, the sea has it not, and we men have the mockery and semblance of it only for our heaviest punishment."

I would like further to suggest that in the alternative definition, first given, I believe, by James Hinton, "that liberty is the power to like what we may do," will be found some reply to the extreme informalist. Certainly a good deal of what may be seen of informal town planning and *art nouveau* architecture does support the view that in the studied irregularities some of the designers are parodying the lines of a nature which they do not understand, and caricaturing a type of beauty which their art is incapable of creating. But because of this, to maintain that no one is competent to compose, either in the form of buildings or in the field of town planning on a non-symmetrical line, that the beauties of proportion and relation can only be displayed when axially planned, seems to me a proposition which is amply disproved by many of the most beautiful buildings, streets, and places which have resulted from the work of the greatest periods of the past.

But our discussion is approaching that most unprofitable point of trying to decide one of those never-to-be-settled problems as to how far we may sway towards one view or another, the extreme and logical outcome of each of which we feel to be unsatisfactory. To avoid this danger I suggest that we try and approach the subject from another point of view. Past generations have not been able to solve the problem on these lines. It is hardly likely that we shall do so to-night, but if we can by discussing it help one another to see more clearly what should guide us we may glean some practical good from the discussion.

What is town planning? What constitutes it as an art, and what limitations must artistic expression through this medium accept?

Town planning consists in making provision for the needs and affording satisfaction for the aspirations of an organised community. It is its purpose to minister to the convenience of the inhabitants, to increase the efficiency of their associated industrial and commercial activities, to foster their social intercourse and their intellectual development by the facilities which it affords, and to add to the pleasure of their lives by preserving the amenities of the town as a place of residence. This is, in mere outline, the useful function which town planning must fulfil. The very expression of some of its purposes would constitute town planning an art, and it is impossible, as in the kindred art of architecture, to draw any precise line between the useful purpose and the beauty of the form adopted to satisfy that purpose, the two being intermingled. If properly appreciated both by the citizen and the artist, these two aspects of the subject are not antagonistic, but they may become antagonistic if the artist forgets the purpose of that which he is creating and imagines that it is his duty to create something beautiful which the citizens may with an effort make use of, instead of creating something useful and expressing it in a beautiful form.

Here at once we meet with definite limitations of a practical nature within which the designer must work. It may be true that the steep, straight street leading over the top of the hill would make an excellent basis for a formal scheme, but if every cyclist has to dismount and push his machine up that hill, and every driver to walk his horse with difficulty down the other side, the purpose of convenient access will hardly have been satisfied, and any beauty which the design may have will be rendered unpleasing by its obvious want of suitability to its proper purpose. We see, therefore, that our plan, whatever its form, must properly satisfy the requirements of use, and must be adapted to the nature of the site. These may be taken as two cardinal principles of successful town-planning design, principles which are sufficiently important to overrule any mere question of formality of plan when they are antagonistic to it. Though these practical considerations will often be irreconcilable with some preconceived formal scheme, it is not often that they will be antagonistic to all forms of beautiful expression. Much has been written on the relation between use and beauty, and I must not wander off into a discussion on this point. Suffice it to say that in town planning, at any rate, beauty is intimately associated with use, with fitness for purpose and function, but it is not the same thing. It is not enough to satisfy the use and trust that by chance beauty will result. Use and fitness will dictate certain lines of development, but it is seldom that these will be exact lines; rather they will be limits of deviation, and it is within those limits which the useful purpose allows that the town planner must keep, and it is of the scope which they afford him that he must take advantage to produce the beauty of form at which he is aiming.

But not only are there limitations due to the useful purposes of town planning; there are, as in other arts, limitations due to the medium.

First of all, this art is not complete in itself. The town planner but lays down the general design, creates the opportunities. He must depend upon the architects who come after him to fill in the details and take advantage of the opportunities he has created. He will be able to a greater or less extent to influence the result by determining the position of main buildings, and sometimes by fixing frontage lines and limiting the heights and character of the buildings; but at best he must leave all detail out of his count; he can deal only with the main masses. It is by the handling of these masses of building and the disposition of the spaces or voids between them, by bringing all the masses and spaces into proportion with each other, and the whole into proper relation to the site so as to produce an organic composition, and by this alone, that town planning can speak, can produce its effect. It is by the completeness of the organic composition also that town planning gives expression to the ideas of corporate activity, civic association and human fellowship, a range of ideas which can hardly, with equal adequacy, be expressed in any other way.

If that be so, then our artistic aim proves true when brought to the test which Mr. Reginald Blomfield has well suggested when he says in "The Mistress Art":—"This is, I think, the vital touchstone of any art that what it does can only be done by that one particular art."

Anything, then, which contributes to the force and clearness of this expression of the organic unity of the city must be proper to the practice of this art, while anything that detracts from or blurs this expression must be improper. It is by appealing to the sense of correlation which springs from spacing and proportion, to the sense of unity which springs from definitely apprehended form, whether in plan by the disposition of the parts upon a level plain, or in elevation by the piling of them upon the hillside, that alone we can produce this our highest form of expression. We are seeking definiteness of form; it can hardly be right to take informality or irregularity as our means.

To sum up, I believe, then, that town planning should be formal, using the word in a broad sense and always remembering that there are limits set by the useful purposes that the plan must provide for, by the nature and opportunities afforded by the site, and by the relation of the beholder to the city which he views, all of which will very often cause the essential effects to depend upon a formalism which does not hesitate to depart from exact regularity on the paper plan, when by doing so more adequate expression can be given to some element of the design more essential to the complete unity of the result than the element of formality.

In conclusion a number of examples were shown on the screen illustrating what Mr. Unwin had been advocating in his lecture. The slides were chiefly from continental cities, with a few from the United States, and occasional examples of the adaptation of the principles to English garden suburbs.

(*To be concluded.*)

ST. PETER'S CHURCH, HARROW.

THE foundation stone of the above-named new church was laid on Saturday, October 14, by Lord Ashcombe.

The new church will be built from the designs of Mr. Geo. H. Fellowes Prynne, F.R.I.B.A., of Westminster. The architect has chosen a free treatment of the Decorated style of architecture. Externally, the church will be simple but effective in character. As both the east and west ends are comparatively hidden from view, very little elaboration of detail will be needed.

The western entrance porches will be placed on either side of an apsidal baptistery, other entrances to the church being placed at the west end of the north and south transepts. Separate entrances are also arranged for the chapel and vestries at the east end.

The plan consists of a nave, 84 feet long by 30 feet wide, divided into five bays, giving accommodation for 450 right in front of the chancel. As before stated, a baptistery flanked by two large porches is placed at the west end. North and south lean-to aisles are placed against the three western bays of the nave arcade, and transepts are thrown out from the two east bays on either side. The north transept wil form, as it were, the nave of the side chapel.

The chancel, which is 39 feet long by 27 feet broad, give accommodation for forty-four, including clergy and choir and room for a dignified sanctuary. The altar is raise five steps from the chancel and nine steps from the nav floor level, and considerable space is allowed on the eas wall, above the altar, for a future reredos or dossal hangings so that the whole effect may be more spacious.

Side passages are placed on either side of the chancel fo returning communicants, and large arches open north an south, giving a view of the east end from the side seats i the church.

Over the passage on the north side a partly-hidden galler will be constructed as a musicians' gallery, the organ-chambe being placed on the opposite side over the vestries. A larg choir vestry opens upon the side chancel passage, which als connects with the clergy vestry and sacristy, and a separat porch and lavatory are arranged for. The roof will b barrel-shaped, which, from an acoustic point of view, i found to be the best form of roof. The nave and chancel wi be carried to one level, the apex being about forty feet fro the nave floor level.

The chancel arch will be carried to the whole height the nave roof, a screen and rood beam being placed withi the arch. The builders are Messrs. Webster & Cannon, Aylesbury, whose tender for the complete work was £8,18

ILLUSTRATIONS.

THE COUNTY SCHOOL FOR BOYS, BROMLEY, KENT.

WE recently illustrated the plans and gave a gener description of the design which was placed first the assessor, Mr. John Bilson, F.S.A., in a limited con petition, and reproduced Mr. Burke Downing's drawing fro the Royal Academy Exhibition. To-day we are able to illu trate the executed work. The school was formally open on Wednesday, the 18th inst., by the Deputy-Lieutenant the county.

The elevations of the building generally are of purpl brown Crowborough bricks and Lawrence's red bricks. T stone throughout is Portland, and the roofs are cover with dark red tiles.

Messrs. R. Cook & Sons, of Crawley, were the contracto and the sub-contractors include the undermentioned firm Heating and electric lighting, Messrs. Strode & Co.; ste work, Messrs. Dorman, Long & Co.; sanitary fittings, M T. Harris, of Blackfriars; wall tiling, Messrs. Martin V. Straaten & Co.; fibrous plasterwork, The Veronese Co. T wrought-iron work was executed by Mr. S. Norbett, Maidenhead, and the stone-carving and modelling by M F. Brooke Hitch, of Vauxhall. Mr. W. Rees Roberts w the clerk of works.

The architect is Mr. H. P. Burke Downing, F.R.I.B. of Westminster.

DONIBRISTLE, FIFE.

LITTLE remains of the original house of the Earls Moray, and the blackened ruins bear witness of t overwhelming flames of 1858. The kitchen and servan wings, being detached from the main block and on a low level, however, escaped, and it is between these two win that the magnificent stairway is constructed. It has exc lent iron railings and is closed by a beautiful wrought-ir gateway in which the initial "M" figures conspicuous The ironwork dates probably from the latter part of t seventeenth century, and is of Flemish workmanship and supposed to have been given by William III. to Anne, wi of Charles, sixth Earl of Moray. A proof that the raili was not of local make is that the standards in the raili below are not central with pilasters. The ironwork painted white, giving an excellent effect, and nearly t whole is in exceedingly good preservation.

The drawing by "Doric" from which our illustrati is taken was awarded a prize in *The Architect* Studen Sketching and Measuring Club.

SIR JOHN SOANE, R.A., F.S.A., &c.

(Concluded from last week.)

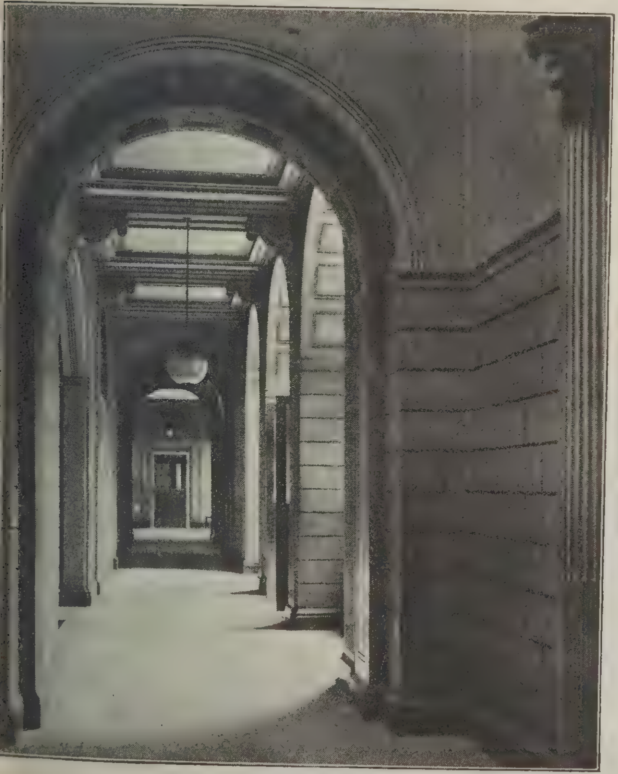
THE death of Sir Robert Taylor, architect to the Bank of England, in 1788, created a vacancy for which there was keen competition. Through the assistance of Lord Camelford, however, Soane was eventually appointed architect. He was very bitterly criticised and made the object of a number of malignant satires in the Press, instigated, doubtless, by the disappointed applicants. Upon commencing his duties he made a thorough investigation of the building, and especially the Rotunda, in conjunction with Messrs. Milne and Dance. In issuing the report they described this latter as being constructed mostly of timber and advised its entire reconstruction in fire-resisting materials. This was eventually done and commenced a long series of alterations and additions which lasted for forty-five years.

Some little history of the Bank of England would perhaps be of interest to those who may not be acquainted with it.

The original foundation dates back to 1691, when a National Bank was projected by William Paterson and Michael Godfrey. The Company started in 1694 with a capital of £1,200,000, lent to the State at 8 per cent. interest, and an annual subsidy of £4,000. The first Governor, Sir John Houblon, had carried on the transactions at the Mercers' Hall prior to this date, and the Grocers' Hall was thereafter occupied for this purpose until 1734, when they moved to the new premises in Threadneedle Street, built by George Sampson on the site of the house of Sir John Houblon.

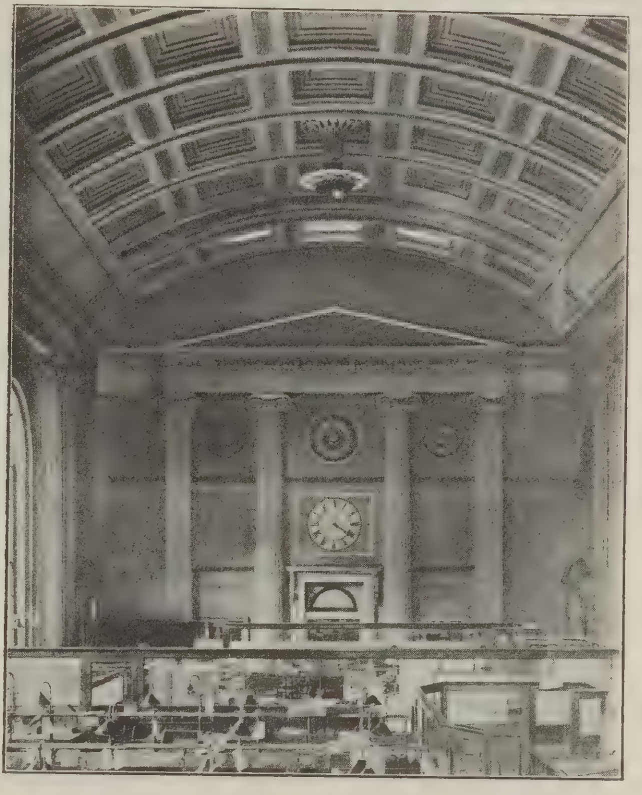
A plan in the Soane Museum shows the entrance into a large court giving access to the Hall, behind which were the directors' and committee rooms, the main staircase and a smaller court (now the Bullion Court), giving exit to Bartholomew Lane. On the west side of this court the drawing and secretary's rooms were situated, and in the rear a large accountant's room, 56 ft. by 28 ft., with necessary staircases, offices and yard.

The façade in Threadneedle Street was of Palladian design, having a rusticated basement supporting Roman Ionic columns for two storeys, the lower having pedimented windows and the upper framed squares in ashlaring. In 1766 Sir Robert Taylor was appointed to make additions to he east of the Bank on the site of the Crown Tavern and Sun Fire Offices, as far as Bartholomew Lane. Subsequently in 785 he repeated this design on the west side of Sampson's açade as far as Princes Street, demolishing the church of St. Christopher-le-Stocks, which stood on the site, to make way for the new Drawing offices and a Court room which were built on three sides of a garden, part of which was formerly the grave-yard of the church.



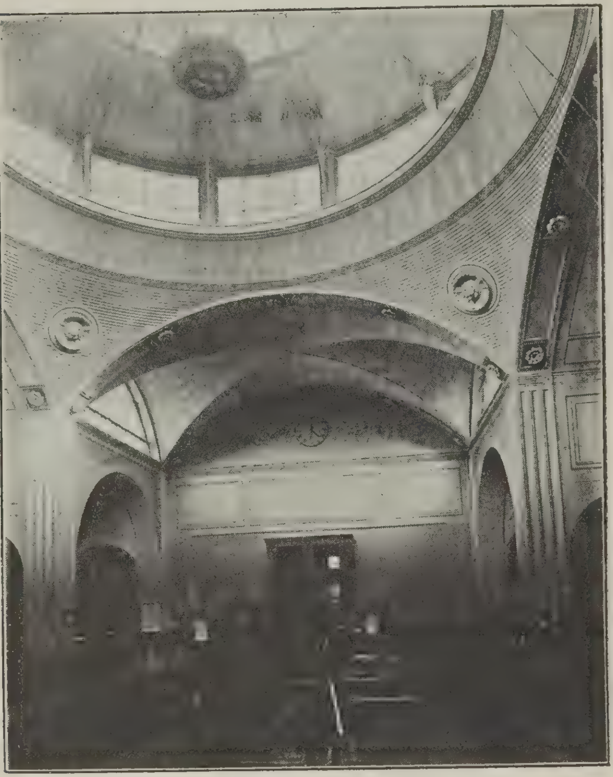
BULLION COURT CORRIDOR, BANK OF ENGLAND.

The Threadneedle Street front had a light Corinthian order to a single storeyed building flanked by pediments, which is said to resemble the garden front of the Pope's Palace in the Vatican. As I have said, the design was repeated each side of Sampson's centre block, but the order adopted by Taylor is shorter and lacks the boldness of Sampson's design, giving almost too much emphasis. There were of course no external windows to these wings, with the exception of Sampson's façade; all lighting was, and is now, obtained by means of internal courts and lantern lights.



PUBLIC DRAWING OFFICE, BANK OF ENGLAND.

The first works executed under Soane's directions were additional accommodation at the north-east corner, bounded by Bartholomew Lane and Lothbury, for which purpose the houses occupying the site and forming Katharine Court, Bishop's Court, Joiner's Court and Falcon Court were demolished, and the Stock office, Library, Consols Transfer office, Lothbury Court, &c., were built upon the site as far as old Princes Street. The next step required more serious consideration, viz. the widening and straightening of Princes Street, which, with the younger Dance's suggestions, was considered before a committee of directors. Eventually the Grocers' garden was pierced through, and a screen wall erected in keeping with the wall of the Bank in Princes Street (south end) for the protection of their premises, thus completing a homogeneous design for the length of Lothbury and for half-way up the two side streets. The reconstruction of the Rotunda and adjacent offices in 1794 was executed in fire-resisting materials, consisting of bricks, terra-cotta, &c., bound together at regular courses with wrought iron rods. The terra-cotta bricks were bottle-shaped cylinders 7½ inches long and 4½ inches each way at the top; these were packed closely together and cemented, commencing at the haunch, up to which point the work was in brick, the holes formed by the meeting of the discs on the soffites making a good key for the plaster. All the constructional sheets for this and similar work are most carefully executed, and in the case of the Bank Stock office an elaborate central system of heating is arranged, by which the flue is taken from the central stove horizontally in serpentine fashion under the floor area before being discharged up the stack constructed in the wall. The Rotunda lantern light is supported by a single row of caryatides like the 3 per cent. Consols Transfer office built in 1797. The finest of these domed rooms, however, is the Dividend office with its caryatides in pairs, while the 5 per cent. office of Taylor's time was rebuilt as the 3 per cent. Reduced by Soane in 1817, with a row of fluted Ionic columns supporting the skylight. The other variations to this system of lighting are to be seen in the Bank Stock office, which has ornamental iron cantilevers, and the accountants' office (now called the Public Drawing office), which has a curved ribbed and coffered ceiling. The ornament is always sparing with an absence of mouldings or cornices. Beads and parallel incised lines ending in some combination of the Greek fret pattern are characteristic of Soane. The treatment of the wood panelling at the back of the Dividend office is very similar to the joinery at the Insolvent Debtors' Court (which by the way is now being demolished). Where his pendentives would not work up naturally from a semi-circular arch Soane was bound to mark the springing with a moulding, and I think this is most successful in the Consols Transfer office, where a lion's head is to be seen at intervals on the fascia. This is a feature also adopted for the cornice to Praed's Bank, 189 Fleet Street (now occupied by the London City and Midland Bank). Pateræ, sculptured plaques, and the caduceus were other favourite means of expression where ornament was desired.


BANK STOCK OFFICE, BANK OF ENGLAND.

In 1800 Soane made an entirely complete design for the whole exterior of the Bank of the same design as the Lothbury front. In consequence of this project an Act of Parliament was passed to enable the directors to increase the working area. In the report submitted with the designs, Sir John had remarked that the exterior elevations represented "a great mass of heterogeneous, unconnected and discordant parts." The work was not, however, put in hand until nearly twenty-five years later, in the reign of George IV. From 1808-10 the five houses forming New Bank Buildings in Princes Street were designed and erected, which are now destroyed. I managed to secure a plate before the second half was pulled down, and this shows a truss adjoining the centre attic storey which is not shown in the drawing in the museum; it adds a very graceful finish to the skyline. The projection with two insulated Ionic columns was repeated at the other extremity. In the rear of these buildings were Thellusson, Nephew & Co.'s premises in Meeting House Court, and the National Debt and Redemption offices, in Old Jewry, contained the cenotaph of the Right Hon. William Pitt, all of which are now removed, but models are to be seen in the museum. Lothbury had to be widened for these additions at the expense of the Bank, Finsbury Pavement not being formed parallel to Coleman Street until a much later date, although Soane had repeatedly urged the advisability of so doing.

The Jubilee of George III. in 1810 was celebrated by illuminating the Threadneedle Street front to a design by Soane, which is to be seen in a lithograph at Lincoln's Inn Fields. Subsequent alterations include the redecoration of the Parlour Library, the gutting and redecoration of the Private Drawing office by C. R. Cockerell in 1836, and the adjoining room in 1849. The lantern in the Residences Court next the Lothbury exit was added by Mr. Blomfield, and the south front attic is the work of Mr. Wyatt Papworth in 1850.

Soane used the order from the Temple of Vesta at Tivoli for the south front and the Lothbury Court, and he was undoubtedly influenced by Hadrian's Villa and the Arch of Constantine and other Roman buildings for many of the features in the Bank.

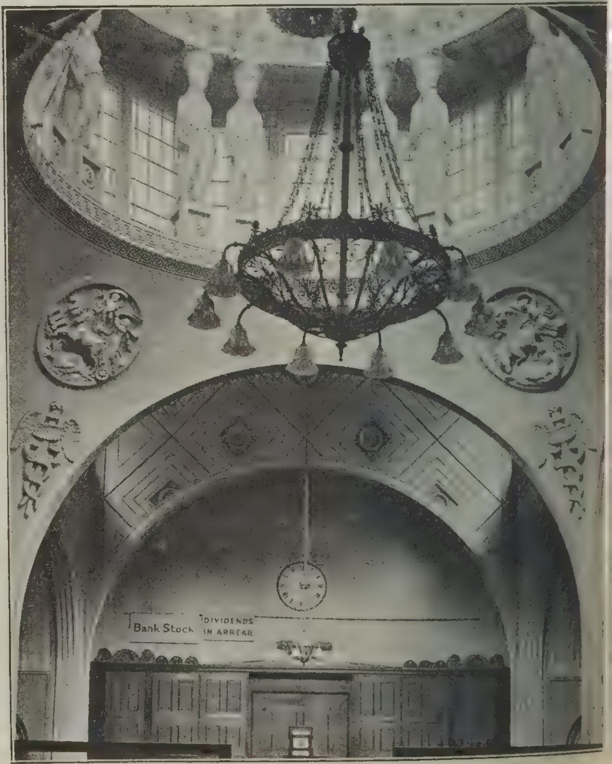
The lineal boundary of the Bank is 1,460 feet, mostly blank wall; there are nine open courts, and the barracks, printing rooms, &c., are situated in the north-west corner of the site. The basement is of course mostly occupied for storage of bullion, coin, notes, bills, and other securities.

When going to the City to-day we are in the habit of passing the Bank as thoughtlessly as any other building, without reflecting on the forty-five years' thought Soane put into it. It was his hobby if you like—his life's work I prefer to consider it—and one that will live in the memory of many when its fellows have passed away. Soane would appear to have anticipated the predicted fall of London, for he prepared an elaborate perspective of the Bank in ruins—eccentric, you say, certainly, but it is built as few other buildings are built in London; built to make ruins, such as are explored in Rome now.

Colonel Graham's house, No. 12 Stratton Street, and the stables to 49 Grosvenor Square, the Countess of Pembroke's house, erected for Robert Knight, Esq., in 1818, illustrat the Soane brick cornice which is his hall mark for this clas of work. You may see the same thing to the garden wall a the back of 12 and 13 Lincoln's Inn Fields, in the mew behind.

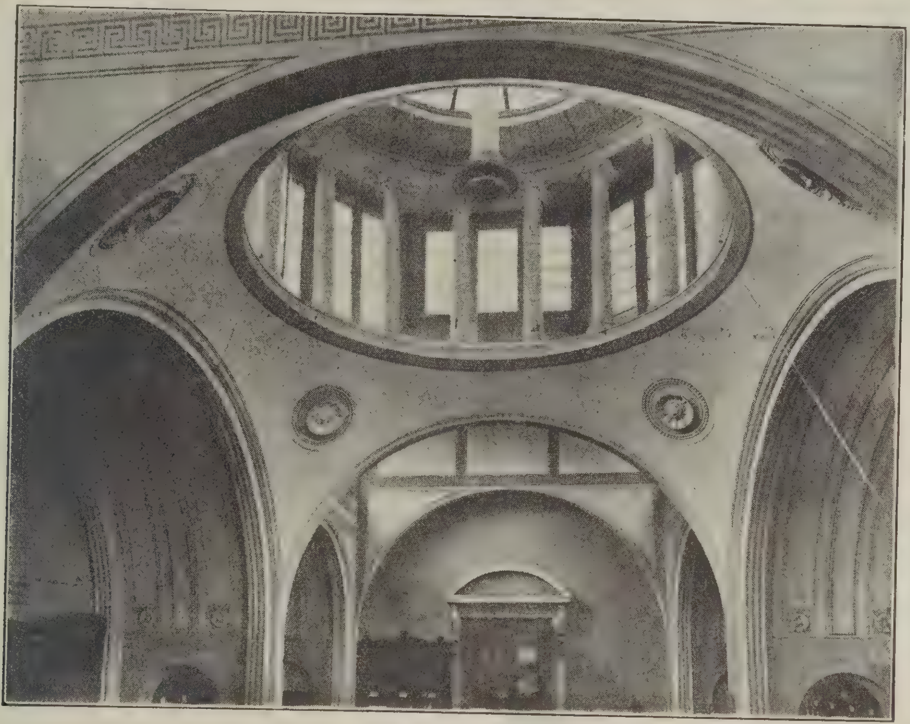
And now I must draw my paper to a close, without takin up more of your time, with a brief description of Pitzhange Manor House, Ealing, Soane's country residence.

This estate was purchased by Soane in July, 1800, fror the executors of Jonathan Gurnell, the house and land cover ing twenty-eight acres, and is situated near Ealing Broad way, in what is known as Walpole Park, which, on the deat of Miss Frederika Percival, in May, 1900, passed into th hands of the Urban District Council of Ealing, and is no being used as a library. The Council purchased the estat from the son of the Right Hon. Spencer Horatio Walpole and it is fully described in a little handbook written by t present borough engineer, Mr. Charles Jones, entitl "Ealing, from Village to Corporate Town." There a several views of the house and interior, including a ceili of a portion built by Dance while Soane was with him.

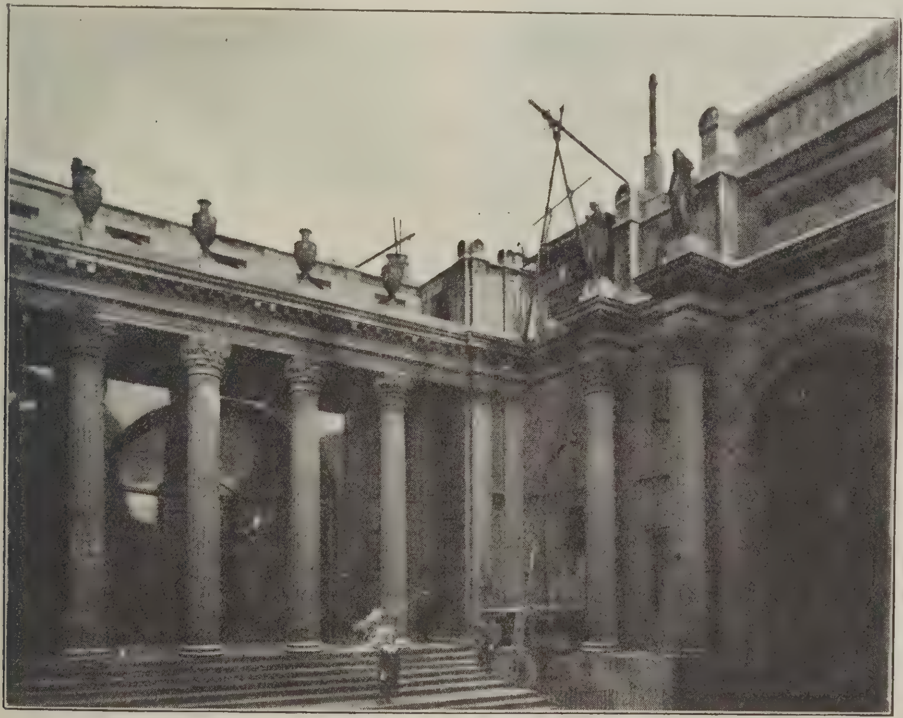


DIVIDEND OFFICE, BANK OF ENGLAND.

In rebuilding the portion for his family Soane retained me of the old work for the sake of associations, although, says, he found a conglomeration of buildings "too deficient symmetry and character to distinguish the work of an tist from that of a speculative builder." There is a legend t during the excavating of a portion of the north side he nd the ruins of an ancient building, which so interested ne that he had it measured and drawn, and restored as uin to form a curiosity for his visitors to view. The end says it belonged to a pious monk, well-endowed with world's goods, who passed his days here in the exercise aritable deeds.



COLONIAL OFFICE, BANK OF ENGLAND.



LOTHBURY COURTYARD, BANK OF ENGLAND.

he villa has a front somewhat similar to the Arch of tantine, a combination of which Soane was particularly having insulated columns, each surmounted with a similar to those in front of the Temple of Pandrosus, at Athens, and the panel under each window contains a wreath of oak encircling an eagle, copied from an antique from Santi Apostoli, in Rome. A similar motive surmounts the entrance gates to the residence, the piers of which are built in flints.

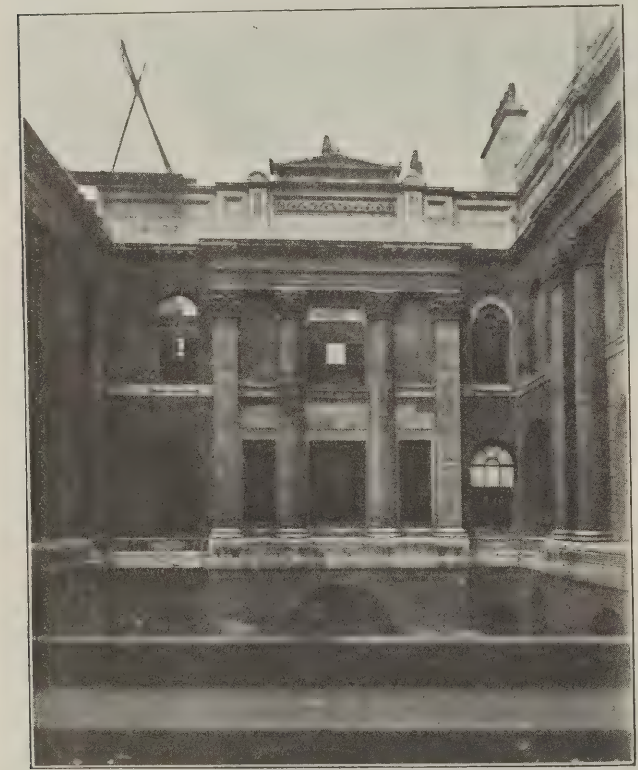
About this time Soane erected the cross or obelisk in the Market Place of Reading for E. Simeon, Esq., the plan of which is a concaved triangle, and it terminates at the top with his favourite feature of a dome-shaped block, having the sides cut off as segments. There is a house at the end of West Street, Reading, built by Soane, which was one time in the occupation of Mrs. Slocombe.

Soane fell out with Wyatt over the additions to the Houses of Parliament on more than one occasion, and it would appear that a life-long feud existed between them; it is curious that he should have married a Wyatt, had a pupil of that name, and an enemy at the same time, apparently three distinct families.

George Wightwick has summed up Soane's work in a very good article, entitled the "Soanean Episode," which he thinks to be an "essential passage in the progress of architectural taste. . . . Sir John Soane in his later day struck out a style of his own, not perhaps to be taken as model-worthy, but certainly to be studied as containing much that is extremely beautiful, and evincing a more playful fancy—if not a more vigorous genius—than has been exhibited for centuries. Never was professor more beholden to the million while he lived. Sir John Soane was certainly subject to the censure of the Press, and was occasionally attacked with much more cruelty than criticism. . . . He had a peculiar feeling for linear decoration." This last sentence refers to the development of the Grecian fret pattern which forms so distinctive a feature in all Soane's compositions.

Many of his details were the outcome of a developed form of the dome with pendentives, often flattened where cramped for height, and thus adapted for domestic dwellings, which may be best seen in his museum, the rooms of which have ceilings in several varied treatments, most ingeniously centred and constructed.

His pediments were very flat and attenuated, his brackets were of cantilever form, his consols of shallow projection, and his chimney pieces like his joinery devoid of mouldings, being usually treated with bands of beads stopped at the angles with a square block, returned at the side, the bands being about 1½ inch wide.



WAITING-ROOM COURT, BANK OF ENGLAND.

One always comes back to Soane's work with freshness; it has a quality which makes one wonder how it is done with such simple means.

The basis of all his designs was, however, Greek. Soane was indeed, as I have already inferred, the forerunner of this phase, and interpreted the style in a much more sympathetic manner than is being practised to-day; indeed, much of the modern Greek work is hard in outline and sorely lacks the natural flowing charm of Soane's work.

Of Soane's influence upon subsequent work I will not say very much. Suffice it, therefore, to say that Sir Robert Smirke, the architect of the British Museum, was in Soane's office for a time; his brother Sydney, however, was never in Soane's office, but appears to have been somewhat influenced too. He erected the Royal Academy, Carlton and Conservative Clubs, &c., while George Basevi, who was articled to Sir John Soane, was associated with Sydney Smirke in the last two works mentioned. His most notable work is the Fitzwilliam Museum, Cambridge, of which the interior was completed by C. R. Cockerell, who also completed Elmes's building at Liverpool. Basevi's short and brilliant career was c
short at Ely Cathedral, where he fell through the Bell Tow

Gandy, Richardson, Parke, and Wightwick are not
chiefly for their fine drawings and some literary work
architecture for which they were severally responsible.

Basevi, Bedford, Edwards and Henry Hake Seward bu
many churches around London and the country showi
Soanean influence. There were many other pupils a
assistants, of whom John Maddox was one in 1760; he w
a beautiful colourist, and had a drawing school at whi
Decimus Burton attended. George Bailey was one of t
later assistants to Soane and the first curator of his museu
which was settled by Act of Parliament on April 20, 18
for the benefit of the public; other curators were Mr. Wi
the late Mr. George Birch, and of course Mr. Walter Spi
is the present curator. Owing to this Act of Parliament
is not possible to exhibit the beautiful drawings and mod
outside the museum, as an application has to be made
Parliament for the purpose, and that is a very expensi
process.

Barry, by the way, either rebuilt or refaced much
Soane's work at a later date, although the two men were
a different school—among which may be mentioned the Boa
of Trade Offices at Whitehall; the College of Surgeo
Lincoln's Inn; Alleyn's College, Dulwich, and the Hou
of Parliament. Barry attempted a Greek design in the p
posed addition to King's College, Cambridge, while his Ma
chester work exhibits as much reserve as Soane's work at t
Bank.

MANCHESTER SOCIETY OF ARCHITECT

ON Wednesday, October 11, the first of the meetings of
Society's winter programme was held, when Mr. Ed
Wood, F.R.I.B.A., delivered the presidential address.

In the room was exhibited a large collection of drawi
and photographs of important architectural works of b
past and present, which were obtained for the occasion
the President.

Mr. Wood said that he proposed to depart from the us
custom which had been followed on many previous occasio
of reviewing the year's work and architectural achieveme
He could foresee that a series of lamentations might be
result, and that was not the spirit in which a new sessio
work should be undertaken. A paragraph of James Rus
Lowell suggested a subject for discussion and thou
"There is only one thing better than tradition, and tha
the original and eternal life out of which all tradition ta
its rise." We all acknowledge, continued Mr. Wood, t
tradition is the greatest factor and the greatest book t
goes to our making. The difficulty is in its interpretati
The temperament of vigour will seek to express itself u
lines founded upon his own conception of the spirit of
work of his predecessors, strengthened by an intense cra
to *create for himself*. How much originality and of relia
on the past is compatible with freedom of thought?

On tradition alone we cannot advance. If we make
past a crutch and ourselves a cripple we are exponent
intellectual stagnation. Do we show our appreciation
the Greeks more wisely in attempting the mechanical re
duction of their forms, or by endeavouring to compreh
the spirit of full-grown manhood in which they wrou
to kindle ourselves by the emulation of it, and to brin
to bear with all its plastic force on our wholly new
dition of life and thought? External imitation of a by
excellence, or even by applying the rules which anal
criticism has formulated from the study of it, produces
artificial, not the artistic. That most subtle of all esse
which eludes chemist, anatomist, and microscopist, the
is in æsthetics not less shy of the critic. The Italian Re
sance fell short in its architecture because to a living
of social and scientific new birth was bound the corpse
past art. The great and magnificent development of
was not accompanied by corresponding achievement in de
The architects were hard at work as students of antiq
while the sculptors were yearning to create.

Yet the notion of absolute originality was an absur
A man cannot escape in thought, any more than in lang
from the past. Not less preposterous than raising
styles is the invention of new ones.

Art must be at once retrospective and progressive
very progress a reflection returned from the mirror of the
Its artists must be endowed with that energy of life w
vitalises and becomes a channel of creative power. T
extent which they possess this force are they orig
creative, fecund. Not in skill, device, artifice or mecha

s originative impulse to be found, but in life—" They are orrents of will." They work in ways dissimilar, but the uality they possess is their measureless vitality, which the cademic is unable to stifle or the archæologist to smother.

From abstract thoughts and reasonings our minds can ravel to the things of to-day and inquire how they influence ur endeavours. In our planning we exercise every mental nergy in satisfying practical requirements. We visit the ost recent developments in every utilitarian direction, and his vitality has justly yielded its reward. Has there been qual success in the development of the architectural contriution, or has our energy exhausted itself *before* we are rchitects? Our clients, it may be said, do not encourage hese things, but is that sufficient to stifle aspiration? Are ot our convictions so true that we are ready to put them side before the indifference of others?

We must, again, remember that the test of an artist ill always be that he has something to say—that he is moved some faith that he holds. He may be a scholar, or ineresting, logical, industrious, but unless he is sincere he can ly be a partial success.

Mr. Wood referred to the collection of works in the room. everence forbade any allusion to those whose works were of e long past, but of the others he could touch upon some as orthy of grateful tribute, and he concluded by an analysis Westminster Cathedral, some works of Professor Pite, Ir. Henry Wilson, and others whose work was exhibited.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.

A PLEASANT time was spent by the members of the Sheffield Society of Architects and Surveyors at the heffield University, on the occasion of the opening meeting the winter session. They were entertained to tea by the resident (Mr. J. B. Mitchell Withers, F.R.I.B.A.), who bsequently delivered an address.

He referred to the approaching twenty-fifth anniversary the Society, and said during the period that had elapsed nce the Society was founded nothing was more marked than e recognition by both branches of the profession with which ey were in touch, of the power of combination and organisaon for good, and the education of those who were to follow em as architects and surveyors.

Touching upon the question of town-planning, he said was chiefly an economic question, and while for health's ke open spaces and airy dwellings were needful, they must ot forget that the house was the shelter of the family, the me of those individuals, and must always be the chief conderation in a well-planned city or town. Wide streets ith costly pavements were secondary to healthy houses and aygrounds as open spaces.

So far as the city of Sheffield, the largest in Yorkshire, as concerned, he expressed the hope that the wisdom and resight of the members of the City Council might be such at the city, with its natural and beautiful surroundings, ight be fated to hold the position in their great county to hich it had so rapidly risen. He expressed sorrow that the rchitectural classes at the University were not taken greater lvantage of.

The work executed by students in the Department of rchitecture at the University was inspected, and the embers were very gratified at the all-round excellence of the ecimens exhibited, the improvement in the measured drawgs, compared with previous years, being especially noticele.

WENTY-SEVENTH ANNUAL REPORT OF THE OUNCIL OF THE SOCIETY OF ARCHITECTS.

OUR Council have pleasure in drawing the attention of the members to the twenty-seventh annual report.

Since last October your Council have met fourteen times, d at their first meeting they appointed the Standing Comttees who subsequently elected their chairmen as follows:—terature (E. J. Partridge, F.S.I.); Examination (Prossor Henry Adams, M.Inst.C.E.); General Purpose (E. J. rtridge, F.S.I.); Finance (B. R. Tucker, M.R.San.Inst., st Hon. Treasurer); Practice (E. C. P. Monson, R.I.B.A.); Registration (G. E. Bond, J.P., President).

These committees have held a total of six meetings, in dition to which a number of sub-committees have been apinted, and have met and dealt with the matters referred to em.

One hundred and thirty-nine members, four honorary members, and thirty-nine students have been elected, a total of 182, and after allowing for deaths, removals, resignations, and lapses, the total membership numbers 1,076.

The number of new members and students constitutes a record for recent years, but this number would have been considerably exceeded had not your Council closed the list in April last, in accordance with the spirit of the agreement for the fusion of the Society with the Royal Institute, in anticipation of the matter being concluded at an early date. The list has since been re-opened, but members desirous of recommending candidates should bear in mind the fact that it is liable to be closed at any time.

The Society has been honoured by the acceptance of honorary membership on the part of H.R.H. Prince Luis of Spain, the Right Hon. Lord Saye and Sele, the Right Hon. Lord Monkswell, and Sir George Riddell.

Your Council regret the loss which the Society has sustained by the death of the following members and students:—W. Andrew, Parkstone; J. T. Ashton, Altrincham; Wm. Boyer, Peterborough; W. R. Court, Liverpool; H. Crutchley, Wakefield; Geo. Heaton, Wigan; Jowett Kendal, Pudsey; P. Munro, Bristol; W. J. Rowell, Newton Abbot; E. Skinner, F.R.I.B.A., Colombo; W. T. Wire, London; and M. B Collins, Redruth (student).

They have also to record with regret the death of his Honour Judge Emden, a member of the Registration Committee of the Society. The late Judge took a very active part and interest in promoting the first Registration Bill.

Registration.—Last October a sub-committee was appointed by your Council to revise the Bill and report upon any amendments which they might consider desirable on points of detail without affecting the principle involved. This was in view of a course of action which your Council had decided to pursue to get the Bill considered during the recent Parliamentary Session. The Bill, having been practically redrafted by the sub-committee, was approved by your Council, and everything was in readiness for an active propaganda, when some of the members of your Council were approached by representatives of the Royal Institute, and it became apparent, after friendly discussion, that some basis might possibly be found for mutual agreement on the broad question of general principles, and after due consideration your Council suspended further action for the time being.

Representatives of your Council subsequently met representatives of the R.I.B.A. Council at an informal conference at Conduit Street, as a result of which the Councils of both bodies appointed official delegates to meet and further discuss the question.

The first joint conference was held in January, and was followed by other meetings, finally culminating in an agreement on the general principles of a Registration Bill, and proposals for the election of members and students of the Society into the various classes of membership in the Royal Institute on certain conditions.

The principles of the proposed Bill and the conditions and terms of the scheme for the fusion of the two bodies were made known to the members of the Society by circular on April 4, and the resolutions necessary for carrying the scheme into effect so far as regards the Society were passed by the members either unanimously or by very large majorities at a special general meeting held on April 20. A confirmatory meeting was called for May 11, an undertaking having been given previously by the Chairman that the agreement between the two Councils should be executed prior to the latter meeting.

In the meantime, the proposals as affecting the Royal Institute were approved and confirmed by the general body of their members, and all that remained to complete the matter was the signing of the agreement and the confirmation by the Society's members of the resolutions passed by them.

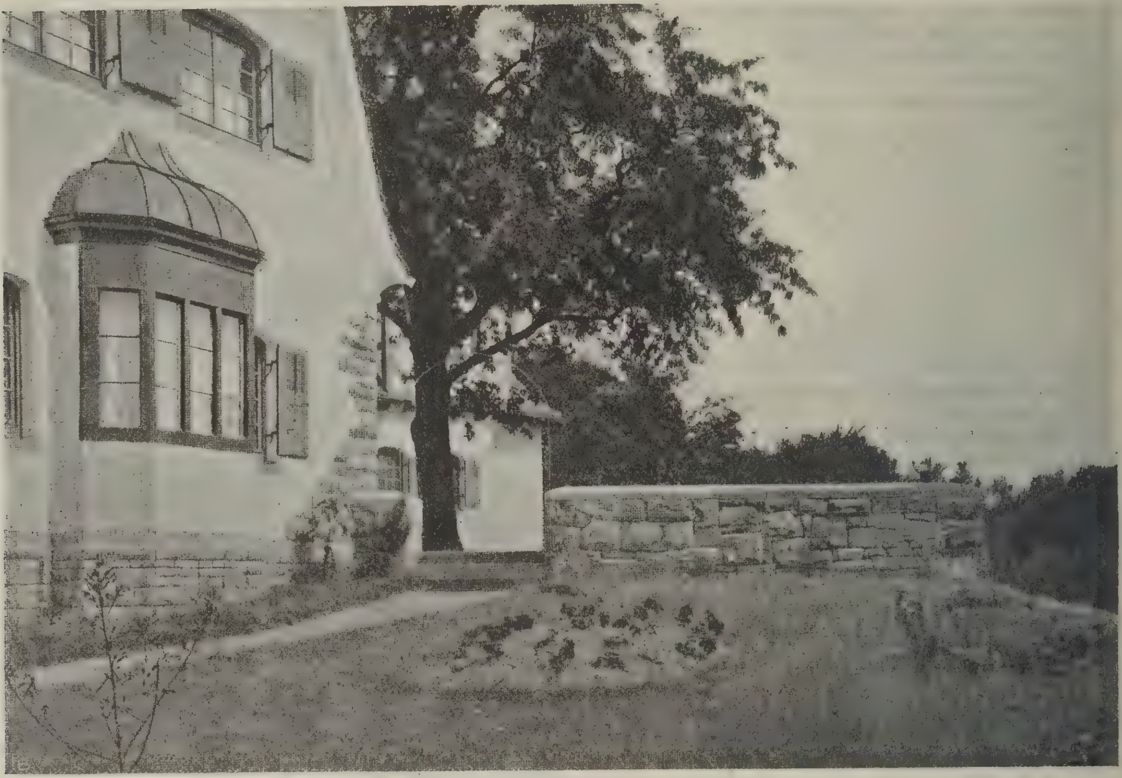
On the eve of the Society's confirmatory meeting intimation was received by your Council that the R.I.B.A. Council were advised that they had not the power under their charter to enter into the agreement, and as the Society could not definitely commit itself without this safeguard your Council decided to suggest to the members the adjournment of the meeting pending the completion and execution of the agreement.

The meeting was consequently adjourned, and in due course your Council received an intimation from the Council of the Royal Institute that they proposed to make an application to the Privy Council for a supplemental charter which would give them the necessary powers to enter into the agreement.

In the meantime, owing to all its activities having been

MODERN EUROPEAN ARCHITECTURE.

GERMANY.



[From *Dekorative Kunst.*

COUNTRY HOUSE AT WITZENHAUSEN.—Herr Richard Riemerschmid, Architect.

temporarily suspended, the Society has been put to the gravest inconvenience, and your Council were recently compelled to consider the position in view of the new session.

After careful deliberation it was decided that the work of the Society should continue without reference to the negotiations proceeding between your Council and the Council of the Royal Institute. Everything, therefore, is proceeding as usual, and will continue to do so unless the negotiations are carried through, in which case all details then arising will be adjusted.

In the meantime, your Council feel sure that the members will not take any steps which will tend to prejudice the Society in any way, or make the position of the Council more difficult in regard to the negotiations still going on.

South African Branch.—The fourth annual general meeting of the branch was held in November last, when Mr. G. S. Burt Andrews was elected President, Mr. M. J. Harris Honorary Treasurer, and Mr. E. H. Waugh re-elected Honorary Secretary.

The total membership of the branch is forty-eight; the statement of accounts shows an increased credit balance, and there is every indication that the branch is making excellent progress and doing good work. Examinations were held in Johannesburg and Maritzburg.

The following addition to the rules of the branch has been confirmed by your Council:—"The retiring President shall be ex-officio a member of the committee for the year succeeding the date of his retirement from the Presidentship."

Last December a conference of South African architects was held at Cape Town, to consider a Bill which had been drafted for presentation to the Government of the Union of South Africa for the registration of architects. The Society's branch was represented by Mr. E. H. Waugh, local hon. secretary, and a resolution was passed in favour of proceeding with the Bill, and the Cape Institute of Architects was appointed the medium of communication between the profession and the Union Government.

The branch has also lent its support to a proposal for a Chair of Architecture in connection with the South African School of Mines and Technology at Johannesburg, and several of its members are actively engaged in organising classes in various subjects.

A number of members are holding office on the Councils of the Association of Transvaal Architects, the Transvaal Institute of Architects, and the Natal Institute of Architects.

Representation at Congresses.—Your Council appointe
official delegates to represent the Society at the followin
Congresses and Conferences:—

National Advisory Town Planning Conference, Liverpoo
February 23 to 24. Mr. Walter W. Thomas, J.P. (pa
President), Liverpool; Mr. A. J. Murgatroyd (Vice-preside
and Local Hon. Secretary), Manchester; Mr. E. C. P. Mo
son, F.R.I.B.A. (Member of Council), London.

The Society is also represented on the National Adviso
Town Planning Committee by Messrs. Percy B. Tubb
F.R.I.B.A. (Vice-President), and Colonel F. S. Leslie, R.
(Hon. Secretary).

Royal Sanitary Institute Congress, Belfast, July 24 to 2
Mr. Anthony Scott (past Member of Council and Local Ho
Secretary), Dublin; Mr. G. F. Ferguson, J.P. (Member
Belfast.

Ninth International Congress of Architects, Rome, Oct
ber 2 to 5. Messrs. Percy B. Tubbs, F.R.I.B.A. (Vice-Pres
dent) and R. G. Lovell (Member of Council).

Mansion House Conference, *re* Crystal Palace, October 2
Mr. Geo. E. Bond, J.P. (President), and Mr. Percy
Tubbs, F.R.I.B.A. (Vice-President).

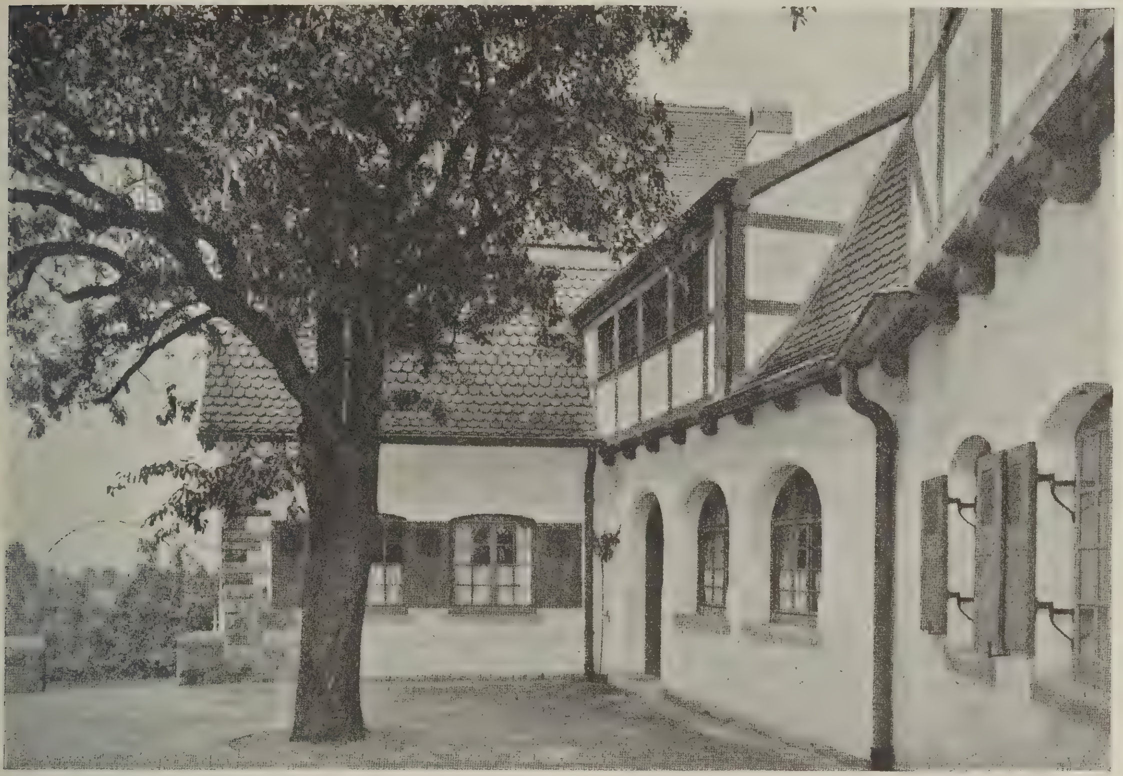
Architects' Benevolent Society.—Your Council, who a
represented on the Council of the Architects' Benevole
Society, have been called upon in several instances for the
support on behalf of previous members or their relatives
distressed circumstances.

In several cases it has been possible for the Benevole
Society to grant relief, but the work and utility of th
Society is greatly hampered by lack of funds, and yo
Council commend the fund to the generous consideration
the members.

Local Honorary Secretaries.—Your Council appoint
local honorary secretaries for the year in the followi
centres:—Cheshire, Cornwall, Devonshire, Dorsetshire, Du
ham, Gloucestershire, Hampshire, Herefordshire, Hertfor
shire, Kent, Lancashire, Leicestershire, Lincolnshi
Northants, Northumberland, Oxfordshire, Shropshire, Some
set, Staffordshire, Surrey, Sussex, Warwickshire, Yorkshi
Cork, Dublin, Cardiganshire, Carmarthenshire, Denbig
shire, Glamorganshire, Monmouthshire, Argentine Republi
British East Africa, Australia, British Columbia, Canad
China, India, New Zealand, South Africa, Tasmania.

The thanks of the Society are due to these members f
their assistance.

MODERN EUROPEAN ARCHITECTURE.
GERMANY.



[From *Dekorative Kunst.*

COUNTRY HOUSE AT WITZENHAUSEN.—Herr Richard Riemerschmid, Architect.

The Coronation.—Your Council submitted an address ot alty and congratulation to their Most Gracious Majesties ng George V. and Queen Mary on the occasion of their :onation. The text of the address and of His Majesty's :nowledgment was published in the Journal.

A number of books have also been purchased, and a inite sum has been earmarked for annual additions.

(*To be concluded.*)

CTURES ON HEATING AND VENTILATION, UNIVERSITY COLLEGE, LONDON,

HE first of the series of six public lectures on "The Real Nature of the Problems awaiting Solution by the gineer" was delivered by Mr. Arthur H. Barker, B.A., Sc., Wh.Sc., on Tuesday evening, October 17, at iversity College, Gower Street, W.C.

Sir Aston Webb, in introducing the lecturer, referred to importance of this subject, and said that the present ures, which were the result of the enterprise of the ıdon County Council, would provide teaching both for lents and men in practice. They would prove of great erest and value to architects, who were often supposed to trouble much about heating and ventilation when igning buildings. He could assure those present that reat deal of attention was bestowed upon both by our hitects.

Mr. Barker, in commencing his subject, referred to the nerous difficulties which beset the path of the heating ventilating engineer, some of which would probably er be solved. Problems such as confronted the gas ply companies when they had to consider to what extent ır gas escaped between their works and the customer's er showed what skill and care were necessary in effecly considering analogous difficulties. No accurate solu was practically possible as to the extent to which the l air of a crowded room leaked through the walls and f of the building itself. The function of the heating and tilating engineer resolved itself into the application and isation of heat and air: the former ranging between deg. Fahr. and boiling point for special purposes and ustries, and the latter at atmospheric pressures.

A great difficulty was that many people were their own ting and ventilating engineers. A man heats his premises by coal fires or connected gas fires to the pipes which the gas company made ready for him. He ventilated his rooms by opening the windows, whilst his domestic staff dried his clothes in the open air or at the kitchen fire. It remained for the skilled engineer to justify his existence, and it was to this end that these lectures had been inaugurated.

Rules of thumb with incorrect and inadequate methods had contributed to many failures, and thus the profession had become discredited, and the idea was prevalent that there was no real science of heating and ventilation.

The chief problem to solve was to provide healthy conditions in our buildings in the easiest and cheapest way. Healthy conditions, however, did not always mean comfort; for a building could be quite comfortable and yet unhealthy, or healthy but uncomfortable. It was, of course, largely a question of adaptability, and a great deal depended upon what different persons had been used to. For example, some people could resist hunger to a greater degree than others because they were accustomed to taking their food at irregular intervals. They were used to adverse conditions, although of a not very pronounced type.

Engineers frequently trusted to general experience in considering such problems, but this practice was sure to lead to mistakes. When, however, it was realised how difficult were the nature of experiments as to the composition of atmospheric features to be combated and how divergent were the views of various authorities as to the amount of air per head that should be allowed in buildings, it would be seen how difficult it was to deal with practical problems. Many people said that ideal ventilation consisted of supplying air as provided by nature, but it must be remembered that we were not living natural lives. What had to be aimed at was the maintenance under all conditions of our lives of the normal bodily temperature.

Many of the theories held to be true in the past with regard to essential composition of good air had, in the light of later investigation, been exploded. For instance, the arbitrary proportion of CO_2, fixed, at one time, at not more than 10 parts in 10,000, was now known to be unnecessary, whilst the importance of the presence of ozone in the atmosphere had been unduly emphasised. The assertion that seaside air contained more ozone than any other was, in his opinion, due to the smell of decayed seaweed, which odour was popularly attributed to this constituent.

This all contributed to a change in practice, and it was now thought that more attention must be paid to the humidity of the air which we were to breathe. Dry air, whose humidity is 50 per cent., takes up moisture and causes cracks in floors and fissures in beams, whilst it absorbs moisture from the throat and lungs, thereby causing discomfort. The humidity of natural air in this country varied at Kew from 57 per cent. in summer to 90 per cent. in the autumn, whilst at Aberdeen the variation was from 71 per cent. to 85 per cent. only.

Another cause of much discomfort and disease was the presence of dust in our air, produced by air currents which carried it in from outside, by wearing away of furniture and clothing, and even the detachment of scales from the skin. One had only to look at a ray of sunlight to see that the air was full of these particles of dust, which, when breathed, remained in the body. How to efficiently extract this matter from our buildings constituted another urgent problem.

We had, then, to discover what really constituted bad, and what good, air, and what quantity should be supplied; whether it should be warmed, how to prevent draughts, and finally to consider the question of cost. We were also to face the danger of setting up conditions calculated to produce fresh bodily disorders, and were to aim at such conditions as would prevent them.

Professor Simpson, at the conclusion of the lecture, thanked Sir Aston Webb for his presence at the first lecture on this important subject, and his remarks were seconded by Sir J. Creighton Brown.

Sir Aston Webb briefly replied, saying that he was there as a student as well, and only regretted that he would be unable to attend the complete course.

THE ROYAL SANITARY INSTITUTE.

THE South African branch of the Royal Sanitary Institute are arranging to hold a Congress in Cape Town on November 9, 10, and 11. This is the first Sanitary Congress to be held in British South Africa, and it is hoped that a large number of delegates will be sent by the municipalities and other authorities interested in sanitation. Among the subjects set down for discussion are the disposal of sewage, the prevention of tuberculosis, the inspection of food, milk supplies, and school hygiene; papers will also be read dealing with other aspects of public health work.

The South African branch, which has only recently been established by the Royal Sanitary Institute, seems to be energetically carrying on the traditions of the parent institution, and no doubt its work will have a beneficial effect in the development of public health administration in the Union of South Africa. The honorary secretary to the branch is Dr. A. Jasper Anderson, the medical officer of Cape Town.

THE SURVEYORS' INSTITUTION.

MR. W. EDGAR HORNE, M.P., President of the Surveyors' Institution, will give his opening address in the enlarged lecture hall at the Institution, 12 Great George Street, Westminster, S.W., at 8 P.M. on Monday, November 13. The portrait of Lord Alverstone, for twenty-five years Associate of the Council, will be unveiled on that occasion, and the gold medal for the best paper read during the previous session will be presented to Mr. E. H. Blake for his paper entitled "Some Notes on Highway Law as affecting Property-owners."

Other evenings during the early part of the session will be occupied by the resumed discussion upon Mr. Done's paper of last session on "The Development of Building Land," and papers on "The Burden of Upkeep on Rural Estates, and its Relief under Section 69 of the Finance (1909-1910) Act, 1910," by Mr. W. A. Haviland, "Recent Modifications in the Provisions for taking Land compulsorily under the Lands Clauses Consolidation Acts," by Mr. F. Hunt, "An Evening in the Institution Library," by Mr. Julian C. Rogers, &c.

OUR CONTEMPORARIES FROM OVERSEAS.

THE *American Architect* (New York) contains a number of illustrations of country houses by Mr. Wilson Eyre, Messrs. Averill & Adams, and Messrs. Bonhard & Parsons; designs for small railway stations by Messrs. Price & McLanahan; and three houses on narrow city lots by Messrs. Adams & Warren. There also appear illustrated articles on the oratory of S. Bernardino at Perugia, and on Mont Michel.

La Construction Moderne (Paris) illustrates a house a office for a notary at Noisy-le-Sec, of which Mons. Barr is the architect, and contains also an illustrated article the Hungarian pavilion at the Turin Exhibition.

Deutsche Bauzeitung (Berlin) continues its illustrati of the new Stadthaus at Berlin, and of the town theatre Freiburg, in Breisgau. The new prison at Mannheim is illustrated and described.

The *Western Architect* (Minneapolis) illustrates a num of commercial buildings by Messrs. Liebbe, Nourse & mussen, as well as some churches, a library, and some priv houses in the State of Iowa. Los Angeles Trust and Savi Bank, by Messrs. Parkinson & Bergstrom; an apartm house at St. Louis, by Mr. Edw. F. Nott; and the library of California University, by Mr. John Galen Howa are also illustrated.

Engineering Record (New York) contains an accoun the successful waterproofing of a basement floor to the fact building of the Velie Motor Vehicle Company in Moline, which was troubled with springs that blew up the origi floor.

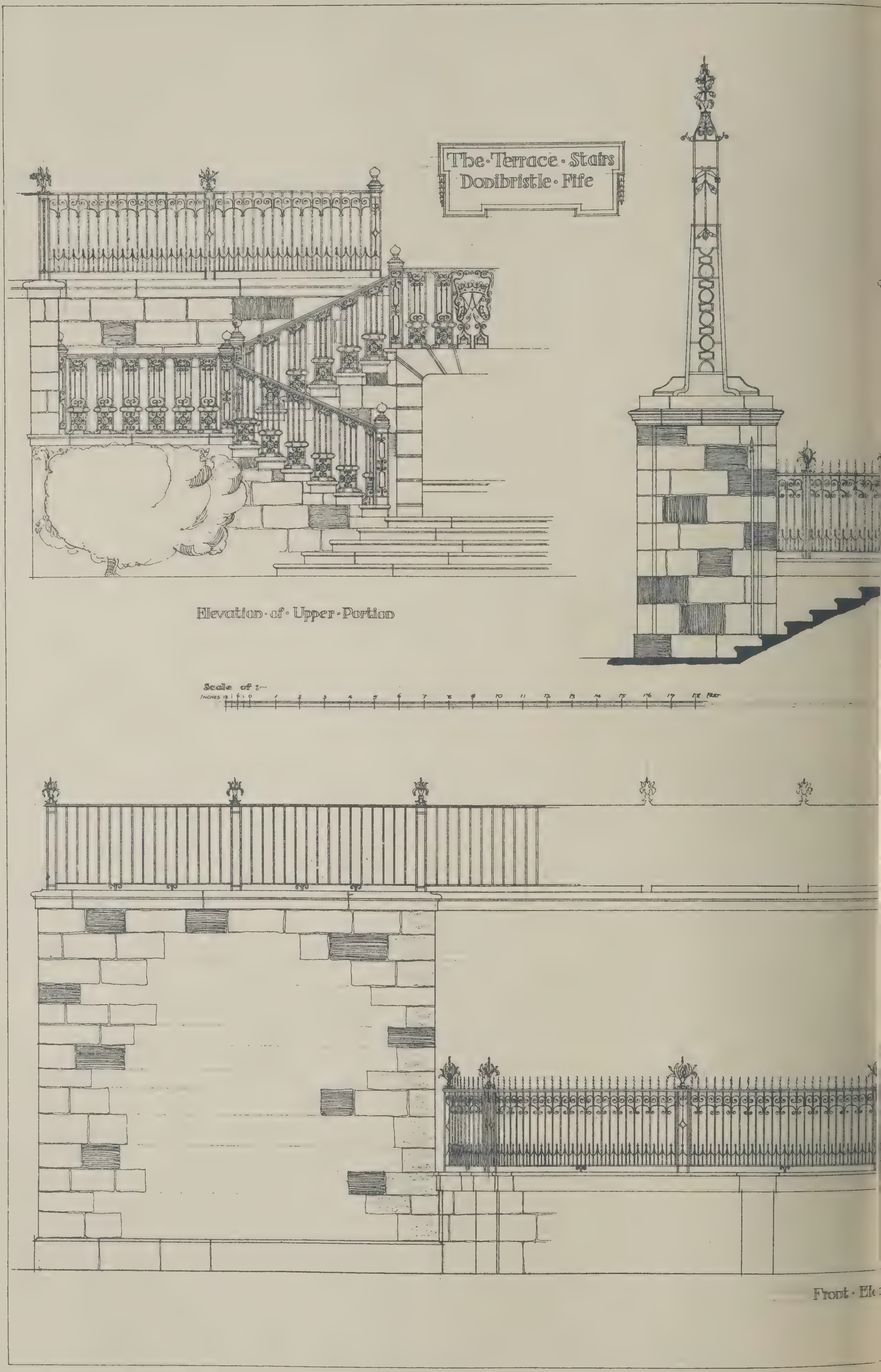
COMPETITION NEWS.

EVESHAM.—At a meeting of the Rural Council on Mon it was stated that seventy-six applications had been recei for particulars of the competition for designs for thirty tages proposed to be erected at Broadway. Fourteen set designs were sent in. After consideration it was deci that the majority of the schemes were too costly. The f selection will be made at a later date.

MANCHESTER.—The Manchester City Council Royal firmary Old Site Special Committee met on Tuesday to sider the position as raised by the decision of the Cou at the meeting held last week and the deposit with them designs for a new Art Gallery and Free Library. Accor to the *Manchester Guardian* they adopted the report of assessor, Mr. Reginald Blomfield, A.R.A., on the selected plans, out of which he chose one as the best. Of plan Mr. Blomfield reported that "the architectural cha ter of the design generally is that of severe Classic, suc was practised in Manchester and Liverpool in the ea part of the last century, and is, in my opinion, emine suitable for the purpose. Its details have been well sidered from a practical point of view, and the result is my opinion, a fine, straightforward architectural m ment, well adapted to the site, and worthy of its positio a central feature of Manchester." The Special Comm add that in consequence of the adoption by the Counci the resolution moved by Mr. Taylor they are unable to a recommendation as regards the carrying-out of the sch But inasmuch as such resolution excepts obligations w have been entered into, it is necessary to determine the cessful architect in the competition which has taken in order that his rights and the obligations of the Corp tion may be determined. The Council are therefore in for this purpose, and for no other, to approve the re mendation of the assessor and the committee.

NEWCASTLE-UPON-TYNE.—The local Education Comm recently invited competitive plans from architects practi in Newcastle for a senior mixed school and a junior m school, each to accommodate 365 children, at Walker Mr. John Bilson, F.R.I.B.A., the assessor, has placed plans of Messrs. Marshall & Tweedy first, and thos Messrs. Harrison & Ash (Newcastle) second. The latter accepted architects for the Bath Lane schools.

MR. J. HUTCHINGS, architect to the Staffordshire Ed tion Committee, and Mr. S. B. Ashworth, architect t Stoke Education Committee, have jointly prepared plan the proposed technical college in Stoke-on-Trent. Accor to the plans which have been approved by the educa committee the college—a two-storeyed building—will be set back from the roadway. The front will be faced red brick, with stone dressings. The stonework entr facing Victoria Road is made an especial feature. wing will be devoted to pottery and the other to mi subjects. The upper floor will contain two lecture-ro museum, assembly hall, and chemical laboratory. Prov is made for the building of a large assembly hall over cloakroom at a future date. The cost is estimated at tween £17,000 and £18,000.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Donibristle·Fife
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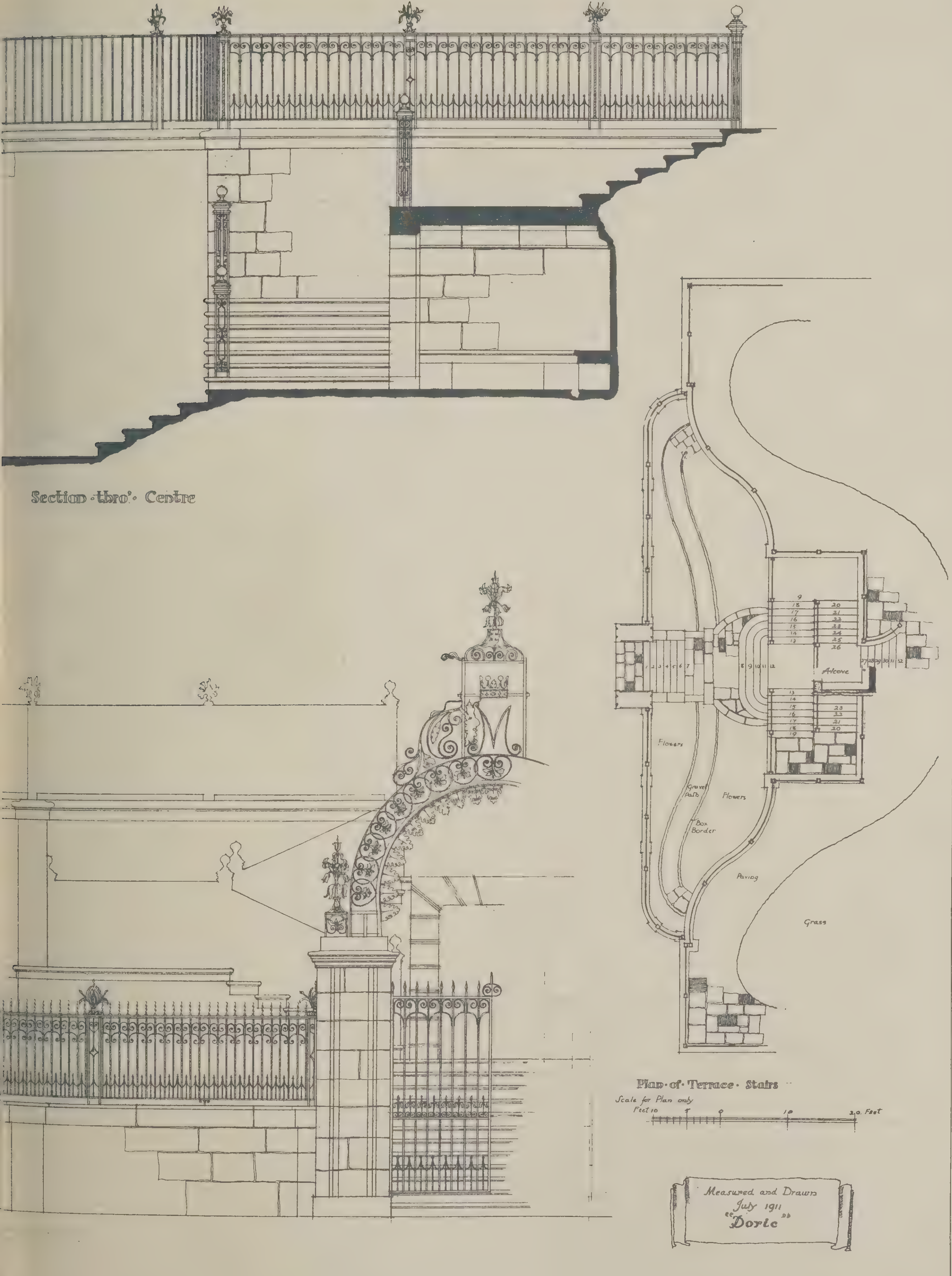
PRIZE D

"THE ARCHITECT" STU

0th 1911.



Section thro' Centre

Plan of Terrace Stairs

Scale for Plan only

Feet 10 5 0 10 20 Feet

Measured and Drawn
July 1911
"Doric"

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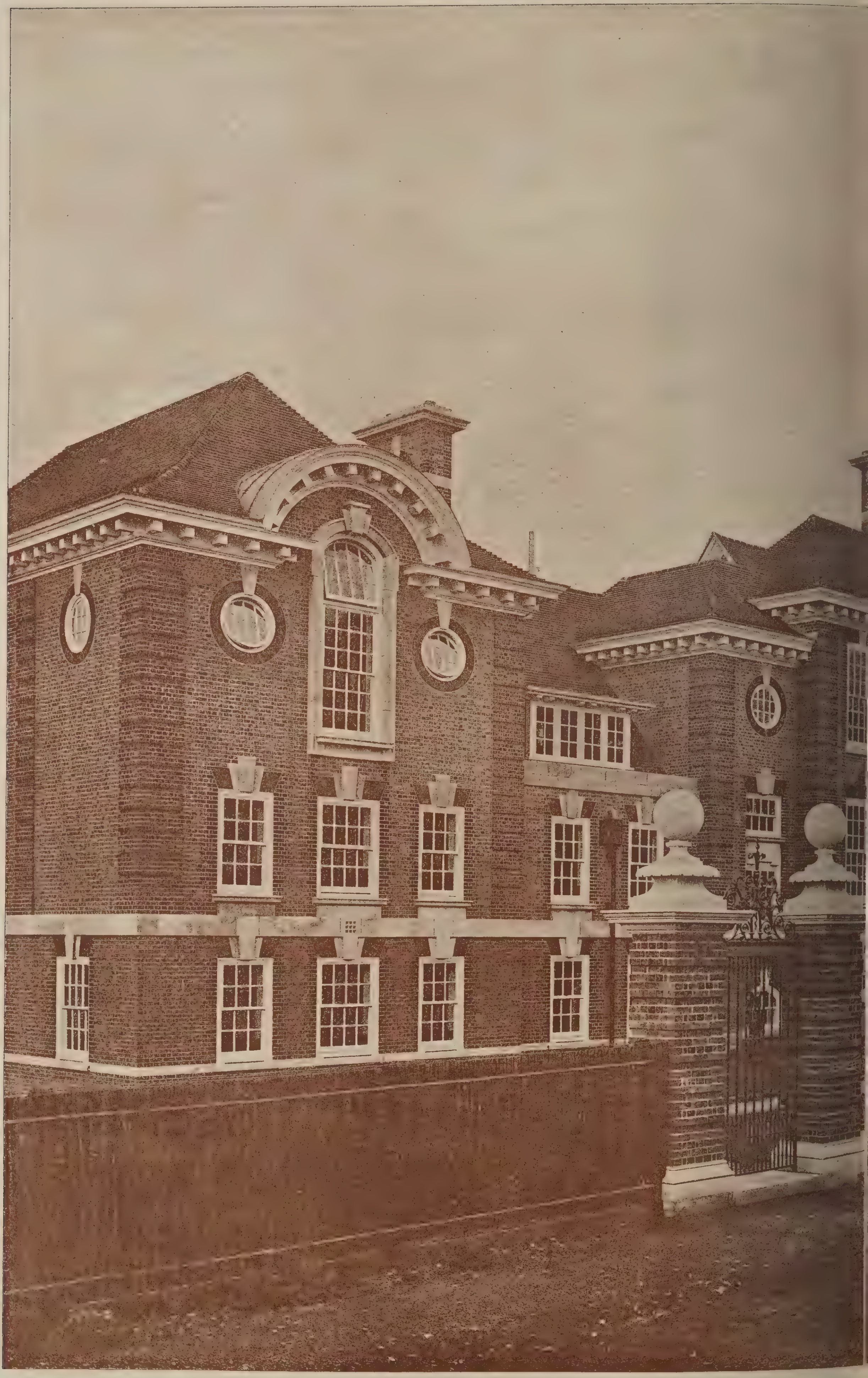
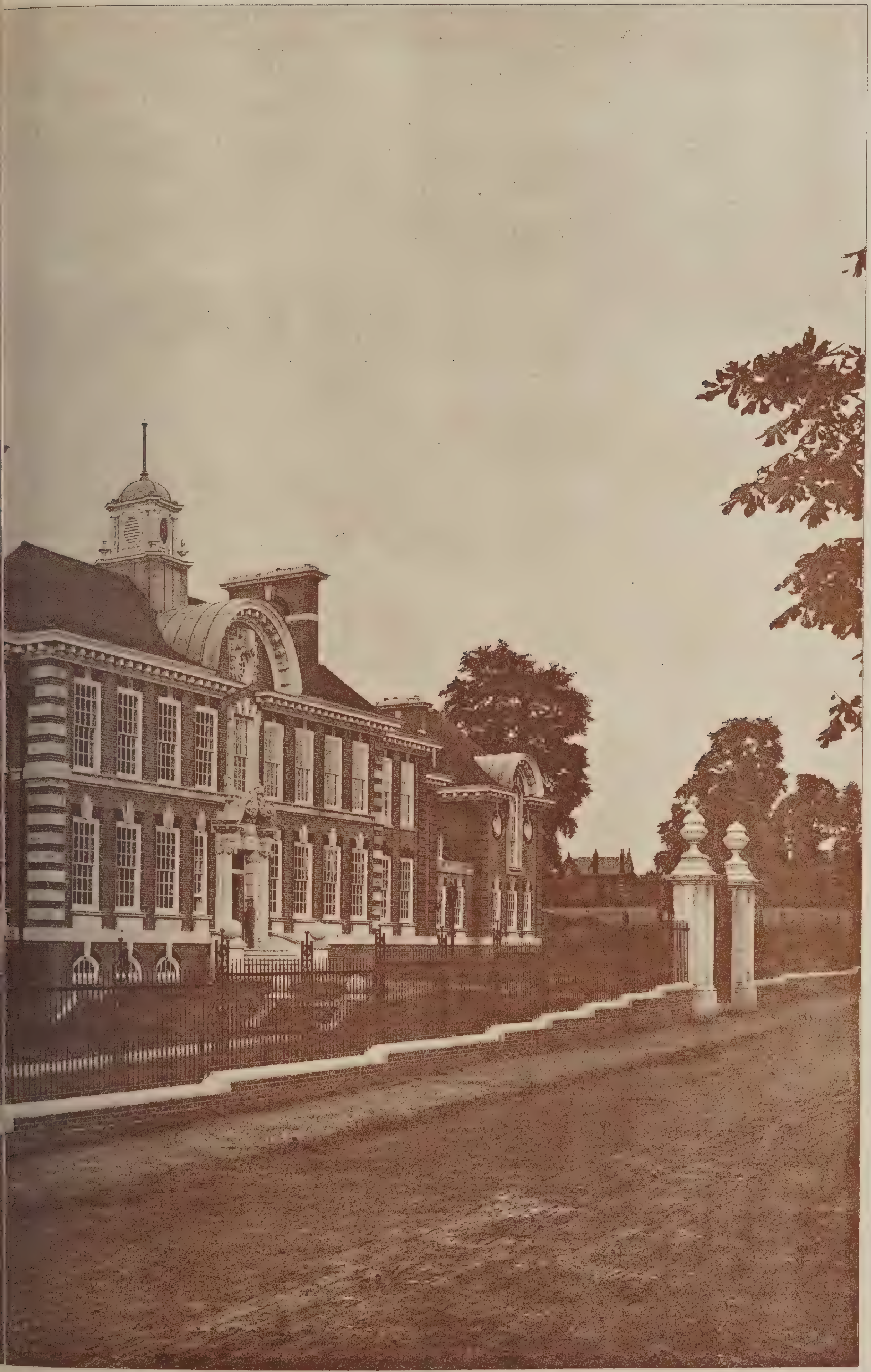
DORIC."

IG & MEASURING CLUB.



THE COUNTY SCHOO

MR. H. P. BURKE



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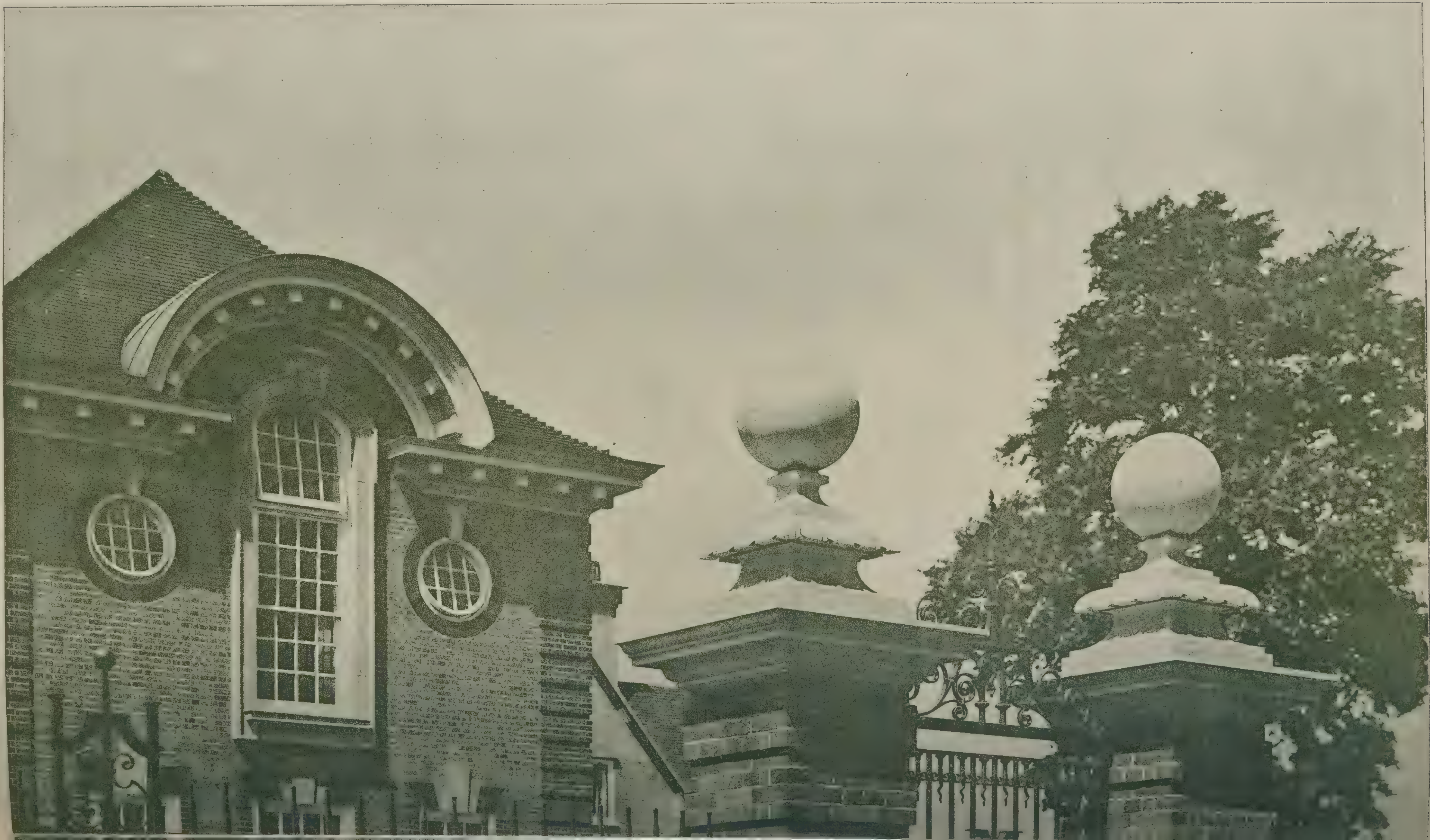
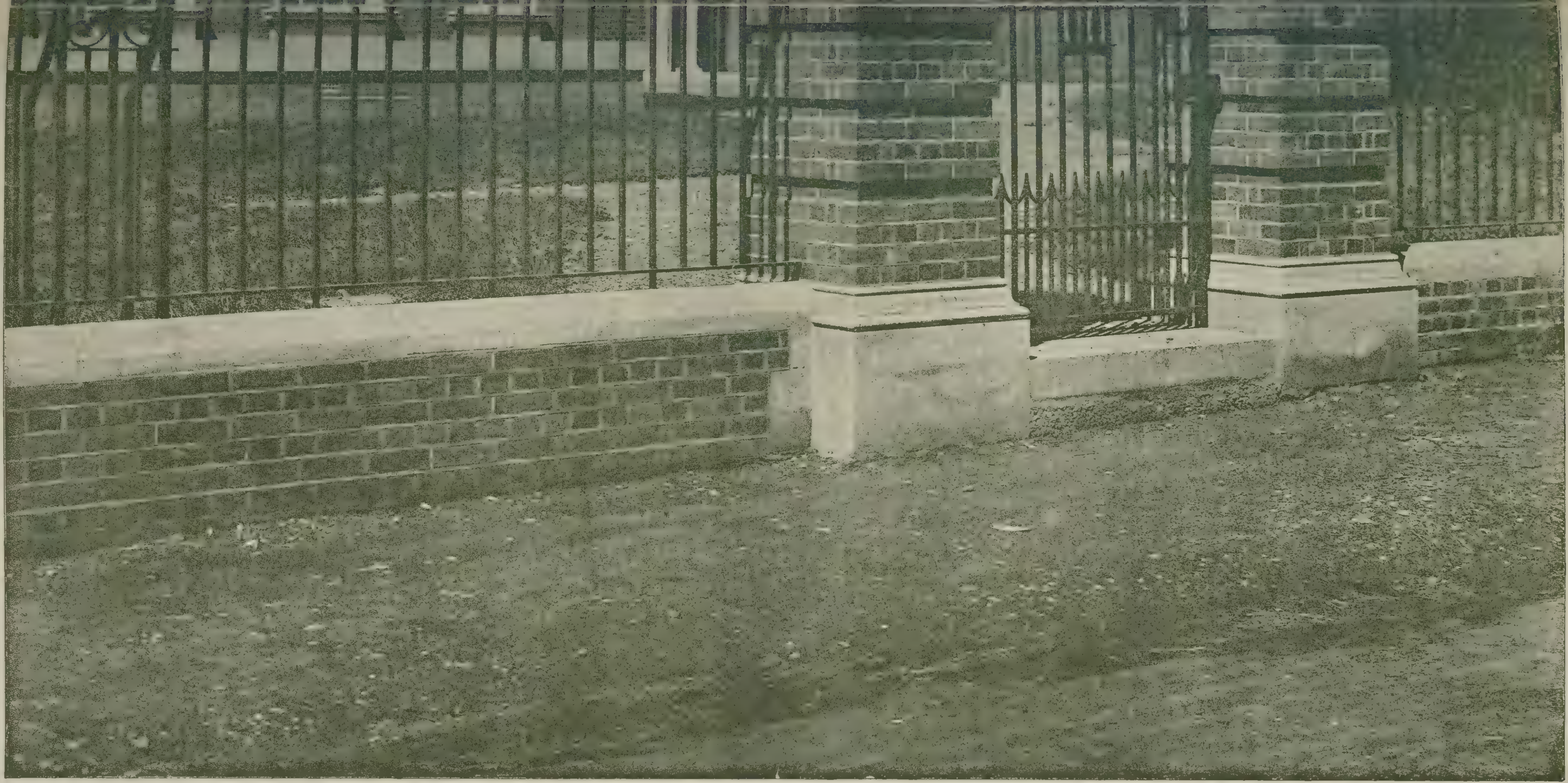
S. BROMLEY. KENT.

F.B.A., Architect

The Architect, Oct. 20th 1911.





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THE COUNTY SCHOOL FOR BOYS, BROMLEY, KENT.

THE JUNIORS' ENTRANCE GATEWAY.

Mr. H. P. BURKE DOWNING, F.R.I.B.A., Architect.

The Architect.

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FORTHCOMING EVENTS.

Saturday, October 28.

Institution of Municipal Engineers: South-Eastern District meeting at Brentwood to inspect Sewage Disposal Works. Train leaves Liverpool Street 1.55 P.M.

Monday, October 30.

Architectural Association: Paper on "The A.A. Excursion to the Loire," by Mr. H. H. Hill, B.A., at 7.30 P.M.

Tuesday, October 31.

Whitechapel Art Gallery: Opening of Old London Exhibition.

The Polytechnic, Regent Street, W.: First of a special course of twelve lectures on Illuminating Engineering, by specialists, at 7.30 P.M.

Wednesday, November 1.

Royal Archæological Institute: Paper on "The Registers of John Gynwell, Bishop of Lincoln, for the year 1349," by Mr. A. Hamilton Thompson, M.A., F.S.A., at 4.30 P.M.

Thursday, November 2.

Architectural Association (Camera, Sketch and Debate Club): Paper on "Woman as a Domestic Architect," by Mr. Edwin Gunn, A.R.I.B.A., at 7.30 P.M.

Saturday, November 4.

Aberdeen Architectural Association: Intermediate Meeting; "A Holiday in Central France," by Messrs. A. E. Payne, A.R.C.A., and Robert W. Gibbon, at 7.30 P.M.

THE CASTLE OF YORK.

HE history of an ancient fortress is an epitome of the history of the country; at least of its military istory, and closely connected with this latter of the neral state of society. Amongst the ancient castles of igland there are few that have surpassed in importance at of the Castle of York. Hence the history* of this onghold which has been very thoroughly compiled by . T. P. Cooper gives us a vivid picture of life in gland in successive centuries.

Our author sweeps away all theories and statements t a castle existed at York before the time of William I., hich seem to have been based upon the authority of illiam of Malmesbury, who wrote in the twelfth century d mistakenly adopted from an earlier writer a description the walled enclosure of the Danish suburb or burh, own as the Earlsburh, outside the walls of York. There says Mr. Cooper, no mention of a castle at York any records of Anglo-Saxon date that have been preved to us, and no evidence that York Castle existed or to the Conquest.

William the Conqueror, in 1068, built his first castle York, the Castle of the Old Baile, on the south-west nk of the river Ouse, and after a revolt of his Danish jects he erected a second and more important castle the tongue of land at the confluence of the Ouse and ss. With regard to these castles our author combats usually prevalent erroneous idea that castles were ays built of stone, pointing out that the castles concted by the Normans in Britain, with very few eptions, were of earth and timber. When William ved at York he found several houses on the plot of d he selected for his second castle. These were olished, and a hillock of earth thrown up on which erected a tower of wood. This formed the keep, and outer bailey was surrounded with an entrenchment of h and bank surmounted by a stockade. At York a her defence was obtained by damming the Foss, and ausing the formation of the King's pool by the flooding he low lying land on the east side of the castle. At wer level was a second pool to provide water for the king of the mill. The first record of the use of stone ork Castle is in the reign of King John, when £37 spent for stone and lime. This was possibly for the tion of the Castle gateway, which, as the weakest point he defence, was frequently the first part of a castle in which masonry superseded the older timber construction, and at York it is known that the ramparts of the Castle were for many subsequent years defended by stockades.

The Castle which William the Conqueror constructed was sacked and dismantled by the Danes under Swegn in 1069, but the timber defences were restored by William, and the wooden keep remained more or less intact until it was burnt down in the massacre of the Jews at the Castle in 1190. When the present stone keep was underpinned in 1903 excavations were made in the mound, and at a depth of thirteen feet, beneath a quantity of charred wood, were found remains of a wooden structure. The timber keep was substituted for one of stone by King Henry III. in 1245-59, but was never enclosed within the walled area of the mediæval castle. The wooden stockades on the earthen ramparts surrounding the castle bailey gave place to walls of stone during the reigns of Edward I. and his successor.

The stone keep erected by Henry III. is one of the most noteworthy examples of mediæval military architecture in England and the only tower existing of quatrefoil plan. Details of the cost of its erection are preserved in the unpublished Pipe Rolls of Henry III. at the Record Office, from which it appears to have cost just upon £2,000, equivalent to £40,000 to-day. Though commonly known as Clifford's Tower, there does not appear to have been any connection between the Clifford family and the Castle until Sir Roger Clifford was hanged upon it in 1322. In the early documents it is invariably described as the "King's Tower," or "the great Tower near to," or "by the Castle of York." The earliest authentic mention of the keep as Clifford's Tower, Mr. Cooper believes to be found in the reign of Queen Elizabeth, when one Robert Redhead, the then gaoler of York Castle, clandestinely demolished and appropriated some of the stonework of the Tower to his own use.

The many strange vicissitudes through which Clifford's Tower passed from the time when it was the chief feature of a strongly fortified castle are detailed in Mr. Cooper's book until it and the walls and towers of the enclosed outer bailey became neglected and ruinous, although the Castle was still in sufficiently good condition during the Parliamentary war to afford a *point d'appui* first for the Royalists and then for the Parliamentarians. Subsequently the history of the Castle of York is mainly that of the county prison, and the conditions under which prisoners lived in the eighteenth century in what was then considered one of the best in Europe are described by our author from the accounts of John Howard, F.R.S.

The History of the Castle of York from its Foundation to the ent Day, with an account of the building of Clifford's Tower. . P. Cooper, author of "York: the Story of its Walls, Bars and es." (London: Elliot Stock. 12*s.* 6*d.* net.)

ARNO'S GROVE, SOUTHGATE.

In 1825 the prison at York was considerably enlarged, and at that time Clifford's Tower was bought from a private owner, Samuel Wilkes Waud, Esq., together with his house and garden in Castlegate for the enlargement of the prison area. The ownership of the Tower after the restoration of King Charles II. seems to have been for some time rather curious, for in 1660 Sir Henry Cholmeley Knight petitioned the King that "having purchased Clifford's Tower in York from one Mr. Moore (whose ancestor had it granted from the Crown in the twelfth year of King James, your Majesty's grandfather) with intention to pull down the same. But your Majesty having made Major Scott governor thereof and continuing it a garrison, your petitioner cannot make his benefit thereof." The Tower seems to have been, however, used as a military post from 1643 to 1684, when its interior was gutted by a conflagration that there is considerable reason to believe was caused by an incendiary. The lawful owners of the Tower were then permitted to enter into actual possession, and the property was sold in 1699 to the owner of the dwelling house and grounds abutting on Tower Hill ditch, from whom it passed through several successive owners to the Mr. S. W. Waud from whom it was purchased by the county for the enlargement of the prison.

NOTES AND COMMENTS.

Opposition to the general principle of town planning with a small number of houses to the acre has been a feature of several proposals for new schemes in and around Greater Birmingham, and we are glad, therefore, to learn that in his latest lecture at Birmingham University Mr. Raymond Unwin has clearly demonstrated that the reduction of the number of houses to the acre does not mean less profit to the landowner, but may mean considerably more.

Taking for the purpose of illustration an esta
20 acres, Mr. Unwin worked out and compare
development figures on the basis of 248 houses a
500 houses. Assuming the price of the land at £
in each case, he showed that whilst the smaller num
houses would require an expenditure on roads of £
the larger number would entail a cost of £14,991.
the owner of the estate would have to find £6,000
capital for development of the closely-packed area
for the more open arrangement, the total cost of lan
roads in the one case being £20,991 and in the
£15,008.

Having laid out an additional £6,000 on his
the landowner would have to offer 500 plots of an a
area of 127 square yards each instead of 248 plots
average area of 310 square yards, and to cover his ex
ture, omitting profit, must charge the purchaser
small plot 6*s.* 7¼*d.* per square yard instead of 3*s.*
per yard for the larger plot. It is unnecessary to a
more than an average amount of intelligence in th
chaser to draw a conclusion as to which is likely to
more favourable position for the landowner, assum
course, that there is a market for the plot of 310
yards. Those who oppose the limitation of 12
to the acre usually base their objections on the in
of certain classes of tenants to pay the necessary
rent for the ground value of the larger plot, which
Unwin's typical scheme he placed at 11¼*d.* as
7¾*d.* for the smaller plot; but the maisonette type o
with two floors and one residence on each seems t
be a better solution than that of each little house
own tiny plot. It is surely better that two families
share 310 square yards than that each should h
exclusive use of 127 yards.

BROOMFIELD PARK, SOUTHGATE.

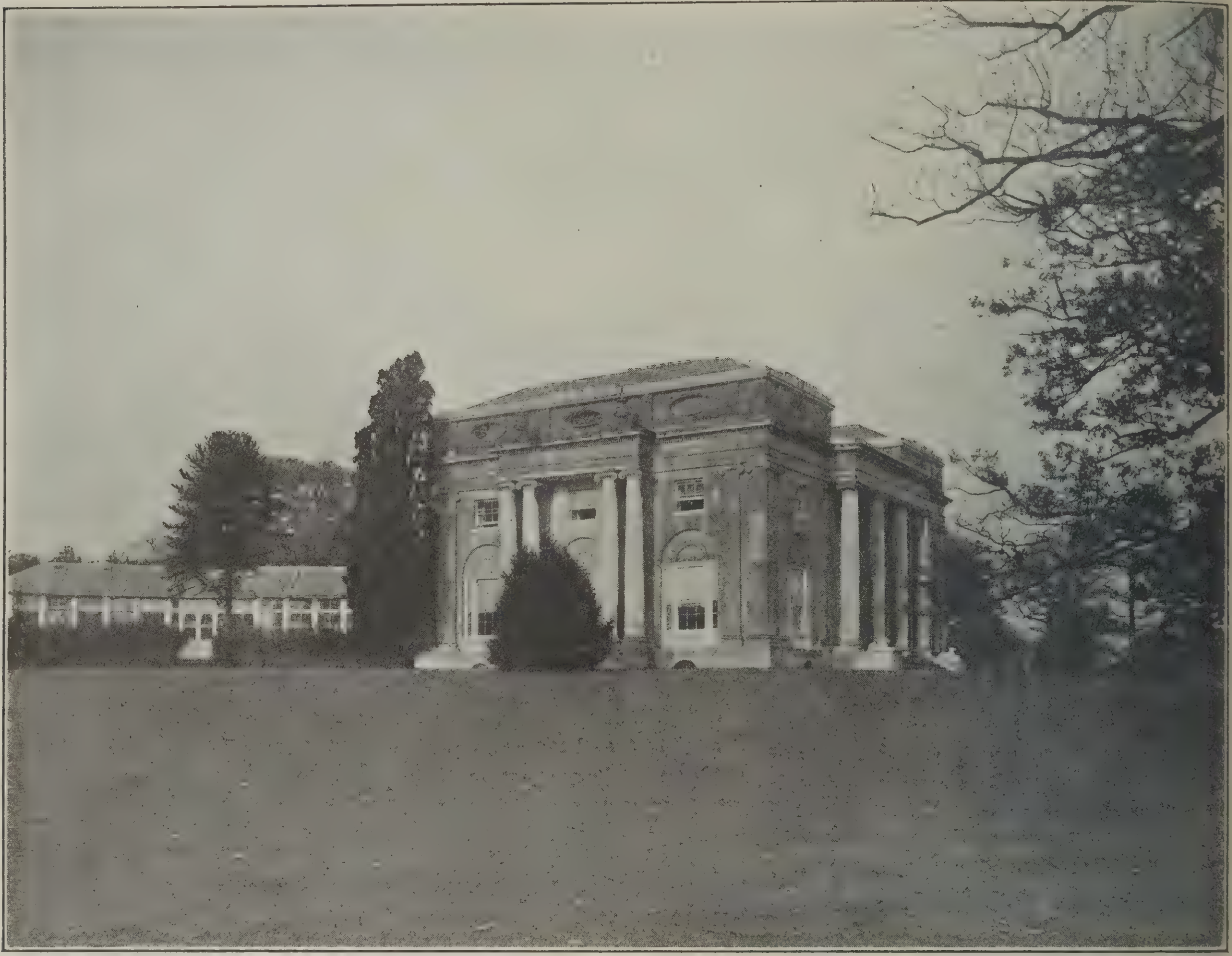
Therefore, from the point of view of a landowner hold- ıg only a small estate of 20 acres, we think Mr. Unwin as made out his case for limitation of 12 houses to the ross acre being more profitable than the full quantum of 5. But with regard to large landowners Mr. Unwin ghtly points out that the increased area of plots means larger extent of land brought from an agricultural value , say, £50 an acre to a building value of £300 an acre.

Mr. Unwin's teaching may, perhaps, be advantageous) the scheme which the Town Council of Sutton Cold- eld desire permission to prepare, affecting a prescribed rea of the borough comprising about 5,000 acres. At ıe meeting called to consider the proposals of the Town ouncil under the Housing and Town Planning Act it was nanimously resolved that the Council do not apply for ermission to prepare a scheme until the landowners had een further consulted. Now the landowners had better udy Mr. Unwin's figures.

The Newcastle City Council has adopted the proposi- on of Mr. Johnston, to which we referred in these notes few weeks back, and will "advertise and offer for open ompetition three prizes of £50, £30, and £20 respectively, r plans for the laying out of 200 acres of the Walker state upon model cottage lines." For the chance of ıese handsome prizes competitors must also design four pes of cottages. We still hope to see the conditions odified when the President of the R.I.B.A. is asked to ominate an assessor.

The meeting held at the Mansion House last Monday ves promise of a successful issue to the projects for the quisition of the Crystal Palace and its grounds for the se of the public. The Lord Mayor's motion that the rystal Palace should be so acquired and that a committee ould be appointed to make arrangements for an appeal for funds and to consider the most practical scheme for the future management and control of the Palace was carried unanimously. Lord Tenterden, on behalf of the Council of the King Edward National Memorial, offered £5,000 towards the deposit of £20,000 required, and for which the Lord Mayor had already received promises of £7,000. There should be no difficulty in completing the necessary amount now that a Mansion House fund has amalgamated the apparently opposing, or at least independent, action of separate bodies of enthusiastic workers for the good cause.

The third report of the Royal Commission on the Ancient and Historical Monuments and Constructions in Scotland, containing an "Inventory of Monuments and Constructions in the County of Caithness," is a volume richly illustrated with drawings, reproductions of photographs, ground-plans, and maps, including a map of the county indicating the position of the various objects of archæological interest. The Commissioners in their report say that the monuments and constructions of Caithness were found to be more numerous and important than was expected, and, though belonging mainly to prehistoric times, they include a number of castles characteristic of the various periods of Scottish castellated architecture from the fourteenth to the seventeenth century. The list of long cairns, the earliest monuments of prehistoric times, was considerably augmented, many of these being identified and examined for the first time, while of later cairns, chambered and otherwise, there were found a number of fresh examples. In the year 1870 seventy-nine brochs were enumerated within the county. The number still in evidence, or of which the sites are recognisable and recorded, has now been increased to 145 as the result of the survey. Many of these, however, are reduced to little more than foundations, and most of them are contained in mounds overgrown with vegetation. Throughout the



GROVELANDS.

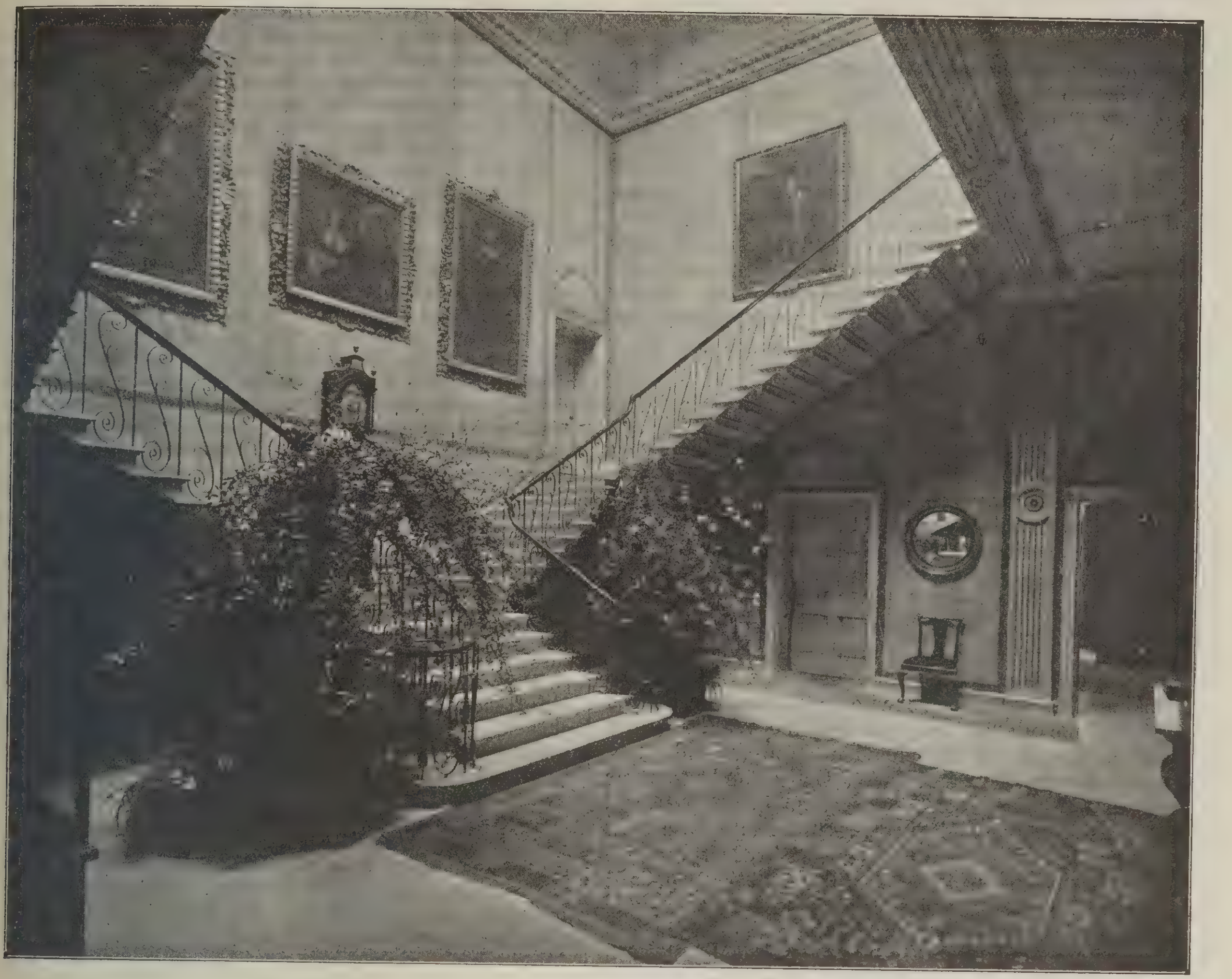
county 24 were found to have been excavated, and details of the excavations and a note of the relics recovered are contained in the inventory.

An interesting discovery that was made in the course of the Commissioners' work was that of a dwelling belonging to the Iron Age, circular or oblong in shape and megalithic in character, discovered in the parish of Latheron, the remarkable feature of which is a gallery or corridor around the interior. A survey of the monuments and constructions in Galway is now being undertaken, and work is also being organised for the survey of ancient buildings in the towns, commencing with Edinburgh. In connection with the proposed memorial at Holyrood to the late King Edward, the Commissioners have expressed their sense of the great importance of preserving existing examples of old Edinburgh architecture included in the scope of the scheme.

SOME SOUTHGATE SEATS.

In the minds of the majority of people Southgate is linked indissolubly with the Lunatic Asylum for the County of London, yet the district is from all standpoints one of the most charming suburbs on the beautiful northern heights. It is a well-known fact that with the linking up of the suburbs consequent on the ever-spreading growth of the metropolis, the outlying districts are immediately assailed by the noble army of speculative builders, who soon begin the transformation of the neighbourhood, and many a row of residences appears on the site of a once famous estate. Although Southgate has experienced the modern builder, and innumerable finger-boards may still be seen in the vicinity, inviting one to obtain particulars at the agent's office, there is some satisfaction in knowing that one or two of the famous old mansions are still standing which earned for it the distinction of possessing the finest seats in Middlesex.

The chief of these is undoubtedly Broomfield Hous an old Tudor structure, encompassed by a park of fif acres, a striking testimony to the good constructi powers of our ancestors in the art of building. Original the house was a monastery, hard by the at one ti famous forest of Middlesex, and the three large lak directly in front of the mansion were evidently of use the monks in obtaining their indispensable Friday far It is probable that when "Bluff King Hal" dealt hard with the conventual establishments of the country, evidently gave Broomfield House to one of his courtier a supposition which is borne out by the fact of the buil ing being of Tudor design. James I. inhabited t premises as a shooting-box while following his favouri sport, and a century later it became the home of t Skeffingtons and Jacksons, and in our own time was t residence of the late Sir Ralph Littler, K.C. The interi of the fine old place is quite in keeping with its outwa charm, all the walls being panelled in rich dark oak, whi the staircases bear some handsome intricate carving the same material. The walls and ceiling of the stairw —a massive specimen of Jacobean work—are adorn with valuable frescoes representing in emblematic design the Four Seasons, the work of Sir James Thornhi whose art is also represented at Hampton Court, Gree wich Palace, &c. On the ground floor are the drawin room, dining-room, and a billiard-room, the doors which are of solid oak, and of an unusual thickness, whi the mantlepieces are admirably worked in oak. Amo the fifteen smaller rooms on the floor above is a curio little anteroom resembling a secret chamber. The roo dry cellarage is of extensive range, and includes a natu spring, the water from which was made to flow in a tank, where wines and other beverages were placed f cooling. The large hooks which may still be seen und the massive gateway serve to remind us of the glories the chase, in which Broomfield House evidently play



THE STAIRCASE, GROVELANDS.

o the full its part. The park boasts much fine timber, ncluding a double avenue of elms, which tradition marks lown as having formerly been the western approach to he Royal chase of Enfield; while better examples of Scotch fir and green oak would be difficult to find. Broomfield House and grounds were purchased in 1903 y the Southgate Urban District Council for the sum of 25,000, and dedicated to the public as an open park for ver.

Adjoining Broomfield Park are the house and grounds f Arno's Grove, at one time called Arnolds. This estate vas owned by several distinguished families until, in 720, Mr. James Colebrooke leased it for a term of three ears from Oliver Horsemann, executor under the will f Sir Samuel Blewitt, of Edmonton. The property was escribed as "all that capitall messuage or mansion ouse, with the outhouses, orchards, gardens, and urtilages thereunto belonging, with the appurtenancies, 1 South Street, alias Southgate, late in the possession r occupation of the said Sir Samuel Blewitt," &c. mong the fixtures were "a sideboard with an foot," "a atchment and a picture of the Serjeant's yeoman," twelve pictures of the Apostles and two Escutcheons," a Chimney sett with Dutch Tyles," "a draught of ıe house in a picture," and "twelve leather bucketts anging on peggs." Mr. Colebrooke destroyed the old ansion, and commenced the erection of a new one, but ying while the work was in progress, it was completed y his son, Sir George Colebrooke. The estate was after-ards sold to Abraham Hume, Esq., for £10,302 5*s*.

In 1776 the owner was Lord Newhaven, who greatly nproved the premises and added a wing. A few years ter it came by purchase into the hands of Isaac Walker, sq., in whose family it has remained until the present me. The Walkers deserve notice for their devotion to ır national game of cricket, Tom Walker, a member of the old Hambledon Club, having invented, in 1785, the round or straight arm method of bowling, in distinction to the old underhand practice. The mansion possesses some interesting apartments; in the dining and drawing-rooms there are two valuable Sicilian jasper mantlepieces, executed in Italy, one of them consisting of a magnificent statuary mask of Apollo. The picturesque stairway is decorated with the triumphal entry of Julius Cæsar into Rome—one of the finest examples of the work of Lanscroon—while the large and valuable collection of paintings, Etruscan vases, and relics from Herculaneum and Pompeii, must also be mentioned. The grounds originally comprised 100 acres, covered with beautiful timber, including cedars of Lebanon, and tall Weymouth pines, the whole being watered by the New River.

Grovelands possesses the distinction of having been renamed three times within half a century. Originally called "Southgate Grove," the name was changed by J. Donnithorne Taylor—grandfather of the present owner—to "Woodlands," and again in 1850 it was re-christened "Grovelands." The building, which is chiefly Ionic in its design, was erected at the beginning of the last century by Thomas Nash, the architect, and is encompassed by undulating pleasure grounds, which are very pleasing in their effect as they gradually fall to a piece of water. The original gates of this mansion now form the entrance to Broomfield Park, and are inscribed the "Village gates." Since the opening of Broomfield Park in 1903, it has been the intention of the Council to provide a similar recreation ground for the Winchmore Hill portion of the district, but owing to negotiations falling through, this project has had little chance of being carried into effect. Quite recently, however, an agreement has been signed by the Council and Captain Taylor, the owner of the estate, whereby sixty acres have been purchased for the sum of £20,000. When the necessary formalities have been concluded, the work will at once be put into hand. Access to the new park will be gained by six different entrances, of which the chief will be 160 feet in width. This gate will be one of the chief features of the development.

Queen Elizabeth's Hunting Lodge was for a period of half a century or more inhabited by the Rev. Charles Bradley, elder brother of the late Dean of Westminster, who conducted a school there. Tradition records that "Good Queen Bess" was accustomed to watch the hunting from the garden of this lodge; hence its name. Eagle Hall, the birthplace of Leigh Hunt, the littérateur and poet, is still existing, although hidden from view by a row of modern buildings.

With regard to the famous seats of Southgate, which have unfortunately disappeared, precedence must be given to Minchenden House, the residence of the Duke of Chandos, who, after the demolition of his other residence, Canons, at Edgware, came to reside at Southgate. It was erected in 1741—a large brick building shut out from the high road by a high wall—by one John Nicholl. His daughter, who inherited the mansion, married James Duke of Chandos, who had been appointed Ranger of Enfield Chase. The house became the residence of the Dowager Duchess of Chandos until 1713, when at her decease the estate came into the possession of the Duke of Buckingham, through his wife, who was the heiress of the last Duke of Chandos. In 1847 the Walker family became possessed of Minchenden House, and they destroyed the mansion and added the grounds to their adjoining estate of Arno's Grove. To gain the entrance of this fine edifice one had to traverse a broad gravel path running parallel with the New River, and then through a shrubbery which led on to the lawn. A massive pollard oak, known as the Chandos oak, is still in existence, and is said to cover more ground than any other tree in England, its spread measuring 136 feet, which is still increasing. Although Minchenden House is now no more, the name is still perpetuated in the form of a smaller structure called Minchenden Lodge, a little to the north of the original site, at which the late Queen Victoria and Prince Consort stopped when they laid the foundation stone of the Lunatic Asylum for the County of London.

Culland's Grove was situated close to Alderman's Hill, which derived its name from Sir William Curtis, an Alderman of the City of London, and Lord Mayor in 1795. He made Southgate his residence for many years, and on being created a baronet in 1802 was described as of "Culland's Grove, Southgate." Curtis was the most caricatured man of his time, and although a friend of the Court and a mover in the élite of society, it would appear that he was exceedingly ignorant. History records that ". . . when his Royal patron was dining at Culland's Grove, a Mr. Cox being of the party, Sir William proceeded to toast his Majesty and the commoner in one health, and in these words: 'Here's to the three C's—King, Cox, and Curtis.'"

Although the purpose of this article was to give some account of the seats of Southgate, one cannot conclude without a few words on the parish church—one of the finest in England. It was erected in 1860, a handsome stone edifice in the Early English style, from the designs of Sir Gilbert Scott, R.A. The building is lofty with north and south aisles and chancel. Among the stained glass windows are two at the east end of the north aisle by Burne-Jones and another at the west end of the south aisle by Rossetti. There are also various memorial windows which do not need to be enumerated here. The north transept was converted into a Lady chapel in 1906 by Vyell E. Walker, of Arno's Grove, in memory of his parents. The tower contains a peal of fine toned bells, and also a set of Cambridge chimes, which were installed as a souvenir of the late Queen Victoria's Jubilee in 1887. Christ Church, Southgate, is indeed a most handsome parish church, standing as it does amid pleasant surroundings, with its massive spire towering far above the tallest greenery.

ROYAL ARCHÆOLOGICAL INSTITUTE.

By permission of the Dean of Westminster, the Right Rev. Bishop Ryle, the autumn meeting of the Royal Archæological Institute was held on Friday, October 20, at Westminster Abbey. During the two-days' autumn meeting of last year attention was concentrated on the Abbey itself with its monastic buildings. Last Friday was devoted to a consideration of the mediæval monuments.

The members first collected in the Jerusalem Chamber. Sir Henry H. Howorth, K.C.I.E., D.C.L., F.R.S., F.S.A., the president, said the chamber in which they met was an ideal meeting-place for an antiquarian society such as theirs, and most especially because of its memories. The Abbey itself was more wonderful than anything else of its kind in the multiform aspects in which it appealed to Englishmen and to foreigners. It is not only a magnificent monument of architecture of the very best period, but it was the cemetery of England's greatest men. Here there was more sacred dust buried than in any other place in the whole universe. The number of interesting monuments in it was so great that it would be impossible to deal with them all in one meeting. Their work that day would be limited to the monuments of feudal times reaching down to the Tudor period. There would have to be the great gap left of all the later monuments. Those awful fellows, the architects at the beginning of the Gothic period, thought that everything should be swept away with the exception of what was Gothic; but in the Abbey they had a place where the whole history of sculpture right down from the earliest to the latest times could be traced, a great museum of English art and history combined such as was not to be seen anywhere else. In conclusion, Sir Henry Howorth expressed a hope that they would be able to arrange a further meeting in order to cover what had that day to be passed over.

Mr. W. H. St. John Hope, M.A., next by the aid of a large scale plan described the mediæval arrangement and use of the Abbey church down to 1540. The mediæval monuments which they had come to examine had been in the past, he said, greatly neglected—partly because people looked on them as something of a wreck, and partly because they had become overshadowed by later work. Most beautiful pieces of work had been stowed away into corners in order to make way for tasteless piles of marble sculpture. The first point for their consideration was the question of the mediæval arrangement of the Abbey, as this was indispensable if they were to understand what they saw. The Abbey church of Westminster was really an Abbey church, and nobody had any parochial rights there. The latter rights were provided for in the Confessor's time by the adjacent St. Margaret's Church. It was, however, more or less attached to the Palace which, of course, stood on the site of the present Houses of Parliament. The King for the time being was the only parishioner ever recognised by the monks. When the Abbot claimed the body of Henry VI. who had died at Windsor, it was because the King was their sole parishioner.

In consulting the plan of the Abbey one had not to think of outsiders at all, for any outsiders who attended only did so on sufferance. So the middle part of the church was practically the chapel of the monks, perfectly self contained and enclosed by a screen, where they sang the services. At the west end of the choir stood a very substantial screen containing the organ, and against which there seem to have stood two altars, one dedicated to the Holy Trinity and the other called the altar of St. Mary o the North Door. Why that small door in the north aisl wall was so important is difficult to say. The altar of th Holy Cross stood undoubtedly in the nave, and probabl against the barrier which stretched right across the churc at a distance of one bay west from the pulpitum. Agains it also was apparently the altar of St. Helen. All th arrangement of the west end can be satisfactorily accounte for as to its uses and the positions and need for the doors A very magnificent rood was put up by Henry III., an presumably was that alluded to afterwards as the crooke rood. At the end of the choir hung a certain number o bells; they must have been in the lantern. About the middl part of the choir—*i.e.* under the crossing—was a platform called the Lower Pavement, on which stood the choir altar Behind it stood for a very considerable time an enormou seven-branched candlestick of bronze, the result of th Judaising movement of the twelfth century by which man church ornaments were based on those of the Temple. Th exact position of all these things is fixed by the record o two burials near by. The whole area from the pulpitum was shut in from the aisles by screens with doors. From the Lower Pavement one ascended two steps to the Upper Pavement, or sanctuary. Dividing the two was the Lantern Veil of rich material.

The choir was remarkable for the number of superb things in it. The most beautiful mosaic pavement in front of the altar was the work of Abbot Ware. The long inscription in brass letters, pieces of which still remain, record that the materials were brought from Rome in 1268 by Abbot Ware, and put together by Odericus of Rome. The mosaic was here arranged in a background of Purbeck marble instead of the white marble customary in Italy. The east end of the presbytery was closed in by a wall against which stood the high altar, and which was continued westward so as to link up behind the tombs with the wall down each side of the choir. In the first bay on the south side are the wooden sedilia erected in 1308. In the adjoining bay in the sanctuary used to stand the King's pew or closet. It was reached from the Palace through a small door on the south side called the *posterum palatium*, and here the King sat whenever he was minded to come to hear a service. For a very long time the east aisle of the south transept was kept free of monuments so that the King might have direct access from his private door to his pew. At the time of Henry VIII. this pew was removed and the tomb of Anne of Cleeves substituted for it.

Mr. Hope next spoke of the extraordinary artistic merit of the early monuments. There was also an astonishing collection of brasswork, which has been spared by a miracle. More mosaic work was to be seen here than in any church north of the Alps. All of the examples are works of extreme importance. A certain amount of post-Conquest decoration has been generally overlooked. Perhaps the most remarkable piece was the great tabula, which was in all probability made in 1269, at the time of the opening and rededication of the church. There is, besides, still remaining beautiful iron and wood work. The collection of heraldic work was extraordinary, including as it did the earliest examples of monumental heraldry from 1250 to 1500 odd. Then there was the galaxy of sculpture. It did not matter on that occasion to whom these monuments belonged, for they had to be quite cold-blooded historically and only consider them from an artistic standpoint.

The party then passed into the nave, where the heraldry of the carved shields in the spandrels was examined. Some of the spandrels in the north transept are carved with beautiful foliage and others with figure subjects. This carving was first introduced in the thirteenth century. Unfortunately much of it is now mouldering away through the effects of the London atmosphere. It behoves students to examine it before the surfaces get more decayed. Although usually the shields are passed with a cursory glance from visitors, they must have aroused great enthusiasm originally and spread the fame of the Abbey as a sculpture gallery.

The mosaic pavement in the sanctuary was next inspected. This is usually covered with three layers of carpet as being far too precious, as Mr. Hope pointed out, for ordinary people to walk upon. Fortunately, the central part had been exposed. The reredos behind the altar is, of course, modern, being part of the restoration under Sir Gilbert Scott. Its large mosaic of the Last Supper was executed by Salviati. In the famous tombs on the north side "weepers" were introduced. This is the first occasion on which this subsequently almost inevitable feature of a mediæval monument was employed. At the back of the tombs to Aymer de Valence and Edmund Crouchback a heavy iron grate took the place of the wall (still behind the tomb of Aveline), which isolated the choir and presbytery. In Henry VIII.'s reign the royal pew was cleared away entirely. The portrait of Richard II., which is now hung in that bay, was considered by Mr. Hope to be one of the finest royal portraits in the world. It was painted for King Richard in 1394. Difference of opinion exists as to its authorship; Mr. Hope believed it to be English work. The whole groundwork was originally covered with gesso, while the crown and sceptre were modelled. About fifty years ago it was given to an eminent painter (Mr. George Richmond) to clean, and he removed all the gesso surface under the impression it was a modern accretion. Fortunately, a friend came into his studio in time to save one small patch. Probably, suggested Mr. Hope, the figure was painted by one artist and the panel was then handed over to another, and inferior, artist to finish. Its present frame was designed by Sir Gilbert Scott, or rather copied from an illuminated MS.

Writing in 1734, an American amateur in a lengthy account of the Abbey made the following, among many startling observations:—"The enclosure behind the chapel, commonly known by the name of St. Edward's Chapel, has nothing very remarkable in it but certain Gothic antiquities which are made sacred by tradition only, and serve to excite a stupid admiration in the vulgar." How different this from the claim of Mr. St. John Hope that the chapel contained more works of art than any other chapel of its size in the world! Besides the seven wonderful tombs encircling the shrine there is behind the reredos of the high altar the sumptuous stone screen with its series of representations of legends connected with the life of the Confessor. It was probably carved in the time of Edward IV. Below this frieze the screen is divided into panels with elaborate canopies. In the centre stands the oak coronation chair and the sword and shield. The former was made by King Edward I. to contain the stone of Scone. The original order was for a chair of bronze, but after this was completed the king was not satisfied, so another one was made in oak and covered all over with gesso decoration, of which traces still remain. In 1901, said Mr. Hope, the stone of Scone was taken out and examined in the presence of himself and others. It was found to have been cut at the back and front to fit the chair, and hanging rings had been let into the end so that it could be carried on a pole. The four small gilt lions supporting the chair are modern. The long two-handed sword and battered wooden shield of State are accepted as having belonged to Edward III. The shrine of St. Edward is remarkable for being one of the few royal tombs which still contain the original bones. It always had an altar at its west end for use in connection with the coronation service. The pall suspended above the shrine was put up at the instance of the late Mr. Micklethwaite. The whole chapel used to be paved with beautiful mosaic, though of a less elaborate design than that of the adjoining presbytery. A fragment of it may be seen in front of the coronation chair. Henry III.'s mosaic tomb was considered by Mr. Hope to be one of the most beautiful things in the world.

The party next divided into two groups to inspect the six chapels entered from the ambulatory; the first went round with Mr. St. John Hope and the second under Mr. E. S. Prior, F.S.A., and Mr. C. R. Peers, secretary of the Society of Antiquaries. Mr. Prior had drawn up the following broad divisions of the monuments in the sanctuary and chapels:—

The Order of the Mediæval Monuments in a Chronological Scheme is given by Roman Numerals.

	Dates of Making
CLASS A. The first Westminster styles.	
(*a*) Marble monuments with bronze effigies, c. 1270—c. 1300.	
I. Princess Catherine (d. 1257) and young children of Edward I.	c. 1270
II. Henry III. (d. 1272) . . . Mosaic tomb, c. 1280	Effigy c. 1291
III. Queen Eleanor of Castille (d. 1291)	1291—1294
IV. William de Valence (d. 1296).	c. 1297
V. Edward I. (d. 1307)	c. 1305(?
(*b*) Caen-stone monuments with gesso enrichments, c. 1280—c. 1320.	
VI. Aveline, Countess of Lancaster (d. 1273)	c. 1280
VII. Crouchback, Earl of Lancaster (d. 1296)	c. 1295
VIII. Aymer de Valence, Earl of Pembroke (d. 1324)	c. 1320(?)
(*c*) Monument of marble, alabaster and stone, with alabaster effigy.	
IX. Prince John of Eltham (d. 1336)	c. 1340
CLASS B. The second Westminster styles.	
(*a*) Royal monuments in marble, alabaster, and bronze, c. 1365—c. 1400.	
X. Queen Philippa of Hainault (d. 1369)	1367 & 1377
XI. Edward III. (d. 1377)	c. 1378
XII. Richard II. (d. 1399) and Queen Anne of Bohemia (d. 1395)	1396 & 1397
(*b*) Monuments of ecclesiastics and nobles in alabaster, stone, and brass.	
XIII. Cardinal Langham (d. 1376), marble and alabaster	c. 1380
XIV. Sir Bernard Brocas (d. 1395), stone	c. 1395
XV. John de Waltham, Bishop of Salisbury (d. 1395) Robert de Waldeby, Archbishop of York (d. 1398) Lady de Bohun (d. 1399)	"Brasses" in marble 1395—1400
XVII. Philippa, Duchess of York (d. 1431) XVII. Abbot Colchester (d. 1420) XVIII. Abbot (?) XIX. Sir Ludovic Robesart (d. 1431)	Freestone monuments 1420—1435
CLASS C. Chapel Monuments.	
XX. Henry V. (d. 1422)	c. 1425

In speaking of the tomb of Henry VII. Mr. St. John Hope made some interesting observations as to its possible connection with Windsor. Henry VII. conceived a desire to build a Lady chapel at Windsor and to accommodate there the shrine of Henry VI. and his own tomb. The accounts reveal that between 1501-3 large sums were expended on the king's tomb. It would appear as if the present bronze grille was begun for Windsor and then brought to Westminster. The tomb within it was undoubtedly specially made by Torrigiano, though even here it is suspected that a little of the original English work was incorporated.

(To be concluded.)

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Breaking Up of Landed Estates.

Sir,—The breaking up of so many landed estates throughout the country will remove an influence which for centuries has been identified with our great landowners in the preservation of natural scenery. This may be seen on all sides, in town and country. In London it gave us the 400 garden squares of which we may well be proud, and in the country that influence has preserved the landscape in innumerable places.

As this influence wanes, can we look for another conserving force without the intervention of a public authority? This question appears to me to be answered in the affirmative by a landowner who, in submitting to auction lands in Eynsford and Farningham, bars the erection of objectionable buildings by a condition of sale that each building shall be subject to the approval of the Royal Institute of British Architects. All purchasers being under like restrictions, all are alike benefited and the community gains.

Those who know the valley of the Darenth, with Lullingstone Park, the seat of Sir William Hart Dyke, and the Elizabethan mansion of Frank's Hall, recently purchased and restored by Earl Bathurst (whose ancestors occupied in Tudor times) will appreciate this effort to preserve the old-world setting of a valley which owes so much to the celebration of Arbor Day by the annual planting of shade trees in the thoroughfares and fruit trees in the cottage gardens of Eynsford and Farningham.

This proposal to substitute the influence of the Institute of British Architects for that of the great landowners will, I trust, be cordially supported.—I am, &c.,

7 Pall Mall:
October 23, 1911.
Mark H. Judge.

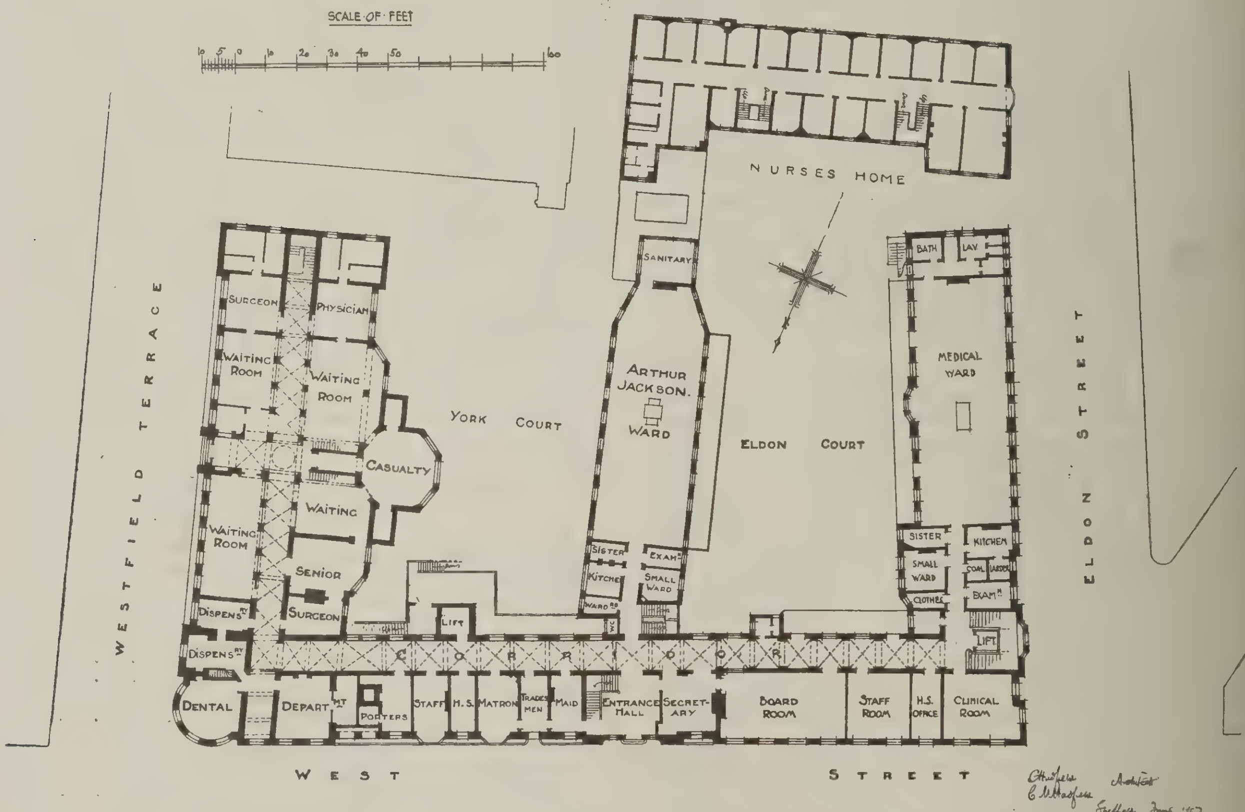
ILLUSTRATIONS.

THE ROYAL HOSPITAL, SHEFFIELD.

This important addition to Sheffield architecture replaces an older institution known for many years as the Sheffield Public Hospital and Dispensary. Their present Majesties, King George V. and Queen Mary (then Duke and Duchess of York), opened the out-patients' department and wards known as the York Block in May 1895, and laid the foundation stone of the Nurses' Home. The administrative block was added in 1898, the central ward block in 1900. The remainder of the work has been in progress during the last two years, and consists of operating theatres, ophthalmic wards, further administrative offices, and a three-storey ward block. The completed hospital will provide accommodation for some 220 beds. Dental and electrical departments are also included. The design has been, as far as possible, based upon the earlier traditions of the Italian Renaissance rather than upon those later phases which are in evidence at the present time. Weldon stone and hard, thin local bricks on a plain grit-stone base have been used externally, and cement concrete construction with steel joist reinforcement was adopted for the earlier portions of the buildings, while in those recently completed reinforced concrete construction on the "Wells" system has been introduced with much economy in space and constructional advantage. Low-pressure heating, by Messrs. Haden, of Trowbridge, has been installed throughout, combined with a natural system of ventilation, and has obtained eminently satisfactory results. The operating theatres are specially and separately treated, and have an installation of powerful electric fans. A feature internally of the ground and first floors are the spacious main corridors with cement concrete groined ceilings. Mr. C. Hadfield and Mr. C. M. Hadfield have collaborated on the design and carrying-out of the buildings. Mr. Edward Lewtas has acted as clerk of works for the present buildings. The present and more recent portions have been erected by Messrs. George Longden & Son, Ltd. The reinforced concrete work has been done by Stuart's Granolithic Stone Co.

Mr. Charles King, F.R.I.B.A., Plymouth, has prepared revised plans for the King Edward Memorial Pavilion, to be erected at Didworthy for Plymouth phthisis patients. The foundation-stone will be laid shortly

SHEFFIELD ROYAL HOSPITAL



GROUND FLOOR PLAN

Photo Lithod by Parkin & Bacon

NTH INTERNATIONAL CONGRESS OF ARCHITECTS, ROME, OCTOBER 1911.

the courtesy of the Council of the Society of Architects
we are enabled to reproduce the report of the Society's
al delegate, Mr. R. G. Lovell, member of Council, pre-
d and adopted at the twenty-seventh annual general
ing of the Society, October 19, as follows:—

o the Council of the Society of Architects, London.

entlemen,—On Tuesday, October 3, I attended as your
ate the inaugural ceremony of the ninth International
ress of Architects in the Hall of the Horatii and Curiatii
e Capitol, Rome. The Minister of Public Instruction
med us in the name of the King of Italy, and Sir
y Tanner, as the delegate of the British Government,
nded on behalf of his fellow-countrymen.

was also able to attend the five sessions of the Congress
e Congress Hall and offices adjoining the Castle of St.
lo. A translation of the subjects discussed and the
itions carried is appended.

*ubject VI.—The desirability of a dictionary of compara-
architectural terminology.*—This was made clear and
omprehensive nature of the proposed international
onary will be realised by referring to the trial sheet here-
The Congress resolved that the Permanent Committee
d undertake this work and that the text should be supple-
ed by illustrations.

ubject IV.—Considerations as to Modern Architecture.
veral papers were read of widely divergent views; but
expressed and unexpressed opinions of the members
so varied and antagonistic that it was found impossible
rmulate any resolution.

*ubject III.—The technical and artistic education of the
itect and the Architect's diploma. The exercise of his
ssion beyond the limits of his own country.*—Consider-
interest and excitement was created during the discus-
following the paper read by Monsieur Albert Louvet
ior of the Grand Palais des Beaux-Arts). M. Louvet's
were embodied in five resolutions; the first one being
e effect "that the right to practise architecture should
ee in all countries." This appeared to be entirely
sed to all ideas of registration. Neither the paper nor
resolutions had been printed or translated, and the
sity of following the discussion in four languages made
y difficult for the bulk of the members to properly appre-
the importance of this proposal. Your delegate was
orted by Mr. W. E. Riley, the delegate of the London
ty Council, and strenuously opposed any voting being
that day, until members had had an opportunity of
erly understanding the resolutions. Although M.
et was willing to delete this first resolution, there was a
derable number of members who insisted upon a vote
taken. Fortunately, however, we were able to main-
our objection by a small majority, and the contentious
e was struck out. It will be noted that this resolution
dmit of another construction—namely, that an archi-
hould be free to practise his profession beyond the limits
s own country; but the discussion was so involved and
vording so ambiguous that the British and American
ngents considered that it was more prudent to adopt the
e we did. During the whole of this very important
ssion, which referred principally to the education of
rchitect, I heard no reference whatever made to the
sity of any form of commercial training.

xtra Subject.—Copyright.—The resolutions were passed
ically without any discussion. They had been carefully
ılated by Monsieur Daumet, the honoured President of
Permanent Committee; Monsieur J. M. Poupinel, the
tary-general; and Monsieur Georges Harmand, advo-
and member of the Permanent Committee. The work
dy done in England appears to entirely cover these
itions.

ubject I.—Reinforced concrete.—Several interesting
s were read, including one by Mr. W. E. Riley,
I.B.A., which was very well received; but it was felt
the study and development of this material from an
tic standpoint had not made sufficient progress, and
s decided that the Congress should record no vote on the
ct.

veral papers were read on—

*ubject II.—The duties of the Architect with regard to
mployer.*—A very heated discussion arose when it was
that under certain conditions an architect should be
itted to accept payments from the builder. Mr. John
r, B.A., F.R.I.B.A., made quite clear to the Congress
trong views existing in our country upon this point. There appeared, in other countries, to be a certain justification for this custom. For instance, it was shown that in Spain the responsibility for the stability of a building was fixed by law upon the builder, consequently it was usual in big buildings for him to employ an architect to protect his interests, while the property owner employed another architect who was usually responsible for the design and also for the foundations. The discussion brought to light so many varied views that the Congress only voted upon the main issue—namely, "that the architect should under no pretext receive fees except from his employer." The further study of this important question was referred to the Permanent Committee.

I append a translation of the paper contributed on this subject by Architect Baumann, entitled "The Principles to serve as the basis of a Bill regarding the legal protection of the Architectural Profession."

Subject VII.—Foreign Academies in Rome.—Although the American, Spanish, and French delegates shortly described the work which their academies were doing (principally that of research), no announcement was made as to the great work for the establishment of a British Academy in Rome. This ambitious scheme Mr. J. W. Simpson has been fathering for some time, and although his earnest efforts appear to be on the point of realisation, he considered it more prudent not to imperil the ultimate success of the enterprise by any premature disclosure. It is undoubtedly a most praiseworthy undertaking and one that claims the cordial support of all those who aim at raising the standard of architectural training in the British Empire.

Subject V.—The carrying out of Architectural work for the State or other public bodies.—This proved possibly more contentious than any of the other subjects. The matter had been exhaustively discussed and a decision arrived at at the last International Congress in London. The London resolution was attacked, on the one hand, by those members who desired to have a distinction drawn between the architect and the engineer, and, on the other hand, by those who wished to have a distinction drawn between the official architect and the private architect. The bulk of the British members had considered it wiser to support the resolution of the London Congress and to ask that no fresh vote should be taken, but, upon it being decided to take a vote, they felt free to follow their individual opinions and most of them considered that "all public works of a monumental character should be open to public competition and not be designed by the official architects." A great deal of confusion arose in framing the various resolutions and amendments and in properly translating into the four languages; consequently, in recording the various votes the resulting resolutions are somewhat involved, although they represent what your delegate and the bulk of the British and Americans voted for. The official architects were naturally opposed to the last resolution and, in the confusion, a protest was lodged with the President, objecting to this resolution on behalf of the British members. I am quite satisfied, however, that the bulk of them did vote and approve, and do now approve the resolution as it stands at present—namely, "That with the object of obtaining monumental buildings embodying all the essentials of art, the schemes in all cases must be prepared by qualified architects and, before the work is put in hand, the schemes must be submitted to the approbation of an institution such as the Académie des Beaux-Arts or to committees the majority of whose members are architects."

Earthquake Commission.—The resolution asking the Government of Italy to take the initiative in this matter was passed without any discussion.

Next International Conference.—It had been exhaustively discussed by the Permanent Committee and decided that the next Conference should take place at St. Petersburg in 1914. A cordial welcome was promised by the Count de Suzor, the delegate from the Russian Government, to all those who would go. It is suggested that the Conference should take place in the winter during the period of the high season at St. Petersburg. The general meeting of the Congress unanimously confirmed the decision of the Permanent Committee.

We were given to understand that only about five hundred members and associates had inscribed, but no official list was forthcoming before we left Rome. The British numbered about seventy, and we believe they were the most numerous, being closely followed in numbers by the Germans. It is said that many absentees were occasioned by the exaggerated reports of the seriousness of the plague in Italy, and in addition many Roman Catholics declined to attend a Congress held as part of a festival to celebrate the fiftieth anniversary of United Italy and the abolition of the Papal temporal power.

It was evident on all sides that our hosts and confrères, the Italian architects, did everything in their power to render our stay agreeable and entertaining. Possibly, we Britishers were too exacting in requiring the Congress meetings to be of a more formal character. It was repeatedly stated that the London International Congress and the Town Planning Congress were so excellently organised that it made it almost impossible for any other city to approach them. On the other hand, we found that the generous hospitality of our hosts filled up every moment of our time to overflowing, and certainly there appeared to be more to be learnt outside than inside the Congress Hall. I therefore refer to some of the functions that your delegate was privileged to attend.

St. Angelo.—This monument of Imperial Rome forms part of the International Exhibition. The Congress Hall and offices are constructed in the adjacent grounds. An interesting show of retrospective art is on view both inside the castle and in the buildings surrounding it. This becomes entirely dwarfed by the dominating influences of the towering mass of masonry, constructed by the Emperor Hadrian for his tomb and for that of his successors. The travertine cylinder of 80 yards diameter was originally faced with marble and with columns and entablature surmounted by numerous marble statues. Its present appearance is that of a mediæval fortress, and its present name was bestowed by Pope Gregory the Great in 590, when he beheld the Archangel Michael sheathing his sword above the castle.

Santa Prisca.—Mr. Filippo Galassi, one of the Permanent Committee, was kind enough to include your delegate in an invitation to a luncheon here, which he offered to Sir Henry Tanner, Mr. John Slater, Mr. Collcutt, Mr. A. E. Murray, and Mr. Henry Tanner. Santa Prisca is on the slopes of the Aventino, with beautiful views on to the ruins of the palaces of the Cæsars on the Palatine Hill, and across these and the modern city to the distant Albani Mountains. In the valley at our feet could be traced the form of the mighty Circus Maximus, greatest of the stadia of ancient Rome, first erected in the time of the Tarquin kings and subsequently enlarged by the emperors to accommodate over 200,000 spectators. Mr. Galassi conducted us down to inspect the Cloaca Maxima, formed before the time of the "Rape of the Sabine women," to drain the swamp between the Capitol and Palatine Hills, and it is still used to drain a part of the city—a period of over 2,600 years. Mr. Galassi also explained that it is now established that the ancients only employed the famous long Roman bricks for arch and vault construction. The bricks that are now found in wall construction are only broken pieces which had been previously employed in some demolished building.

Victor Emanuel Monument.—This great work, designed by Count Sacconi, suggests many reflections. The bulk of the sculpture, parapets, pedestals, &c., are at present only in plaster. Since 1885 the work has been progressing, and it was hurriedly completed in the present temporary manner for the celebrations this year. Many important modifications can, therefore, be made in the completed work. The main relief on either side of the standing figure of Peace is actually in duplicate, divided into sections and ingeniously hung on internal rails so that one design can be slid behind the other. By this means the public has the opportunity of judging the work of both of the first competitors *in situ.* Needless to say, no expense is spared. We had the opportunity of judging the work from the roof to the basement. The honeysuckle ornament on the highest cornice is as well finished as if it were being used at the eye level. Many of us felt that, grand and mighty as the monument appears in mass, greater dignity still might have been obtained if less ornament had been employed in the lower part; and some of our number considered that one or two less columns in the colonnade would have improved the spacing and widened the end porticos. Mr. Galassi was able to let us see the various models prepared during the progress of the work. The original one made by Count Sacconi appeared to us much the more noble. The lower part was heavily rusticated and with only one centre opening and very little ornamentation. The whole building was three or four metres less in length with two less columns, and consequently wider spacing in the colonnade. The existing modifications became necessary in consequence of an important development when getting out the foundations. The construction is erected on the northern slope of the Capitol Hill, and it was found that what was supposed to be solid rock, only requiring a facing to be fixed, was so honeycombed that it had to be cleared away and high halls were formed, necessitating the vari
windows and openings which now exist. For similar reas
the N.E. end had to be extended. While admiri
the magnitude of this colossal monument to a great King
comparison was drawn with the monument, erected in L
don, to a great Queen; while bounding over the ruts of
ill-kept streets, another comparison is drawn as to the m
utilitarian expenditure of public money in our own count

The Capitol.—A brilliant reception was held at t
historic spot on the invitation of the Syndic. The th
buildings surrounding the antique bronze statue of Mar
Aurelius are at present united at the two angles by w
and plaster constructions, repeating the façades designed
Michel Angelo. This enabled the guests to circulate fre
between the well-known collections, which were all seen
very great advantage by the aid of our well-informed c
rones. One interesting fact was brought home very clea
to us. We found ourselves admiring frescoes and decorat
features of the fourteenth and fifteenth centuries on
walls of a building designed by Michel Angelo, but
executed until after his death in 1564. This was explai
by hearing that his façade had been applied to a mediæ
building of the thirteenth century.

Lectures.—Commendatore Boni, who is the curator,
is in charge of the excavations of the Fori, gave an inter
ing lecture, with slides, on the Forum of Trajan—the hig
development of Roman art. He described his discovery
the grave of Trajan at the base of the column, and
method he had adopted for determining the exact len
of the Roman foot, 100 of which represent the height of
column, including the pedestal. This also represents
depth of earth removed from between the Quirinal
Capitoline Hills. Professor Boni has found that 27.
metres represent the exact length of 100 Roman feet, roug
91 English feet, instead of about 97 English feet as
viously supposed. Professor Stübben also gave a lecture
slides on town planning, similar to the one he gave at
London Town Planning Conference. He described
garden cities of England as the apogee of domestic work,
claimed that in Germany they were making great adva
in the town planning of towns.

Palazzo Colonna.—A luncheon was offered by the Orga
ing Committee to the delegates in the Pavilion of Pal
Colonna, and afterwards we were escorted through
famous picture galleries and gardens. Here we saw a f
ment of a colossal architrave, believed to have been pa
the main entrance to the Temple of the Sun.

Villa Albani.—With the permission of Prince Torl
an afternoon reception was held in the beautiful gar
and in the galleries of antique statuary.

Villa del Vascello.—A delightful garden party was g
by the Marquis Luigi Medici del Vascello. The view
the tower over Rome and the Campagna was most exten
The original Villa had been destroyed when the Fr
attacked Rome in 1849, and we had the pleasure of b
presented to an old gentleman who had helped to defen
place and was one of the veterans of Garibaldi.

Villa Borghese.—A whole day was spent in and a
this beautiful gallery and park which encloses the
Zoological Gardens. These certainly are the most real
in the world. The large animals are not confined in c
but have an open space allotted to them in which they
free to roam; the back part of this enclosure is forme
wonderfully realistic overhanging rocks with caves or
and interspersed with cacti and other tropical plants; ap
ently there is nothing but a slight wire fence to sepa
the animals from the visitors. Courage seems to ooze
beneath one's boots while watching a couple of roaring
apparently about to choose their meal from among the
tators, of which you happen to be one. The same prin
is employed here as at Hamburg, but the results obtain
Rome are much finer.

The Ethnographical Exhibition is a most comprehe
collection of typical buildings of each Italian prov
correct in every detail, both inside and out. To an arch
tural student there are gathered together in the P
d'Armi samples of all the motifs and details that he w
have to search the whole of Italy to discover. It is gene
admitted that nowhere has better reproductive work
seen.

The Fine Art Exhibition is also admitted to be the
international collection of pictures ever gathered toge
and, to lend additional interest, the exhibits of most o
larger countries are each housed in buildings specially
structed as typical of the architecture of the country.

tish pavilion is by Mr. E. L. Lutyens, and is founded the upper storey of St. Paul's Cathedral. It is most tifying to know that, on all sides, it is admitted that the tish collection is by far the best in the Exhibition. One urious to know how such a very excellent and comprehen- collection was gathered together. All phases of British seem to be represented. The pre-Raphaelite men form emarkable gathering. Although the collection in point number and quality surpasses any other country, the hod of display is entirely eclipsed by the methods adopted Hungary, Germany and Austria. The exquisite plicity of the whole interior arrangement and the careful ging of each individual picture is a study in itself. tainly the British Pavilion would have required enlarg- to three or four times its present size to have attempted thing like it.

Model of Ancient Rome.—This is the work of Monsieur Bigot, who has spent seven years in careful study with foremost archæologists and in completing this wonderful roduction of the Imperial City in the fourth century A.D. s built to a scale of 1 to 400, and covers an area of ut 150 square yards. Only the centre part of the city iown, but it is sufficient to include the Baths of Caracalla the south to the Mausoleum of Augustus on the north, from the Aventine Hill on the west to the Quirinal on east. Nothing can equal this ambitious work as a means reconstructing the general aspect and topography of the ital of the world sixteen hundred years ago. Every ail of historic or architectural interest is shown. The itheon, rebuilt as at present, but standing amidst the hs of Agrippa; the house where Julius Cæsar was mur- ed at the east of Pompey's Theatre; the river Tiber ing from north to south and skirting the city on the t; the busts known to have existed in the upper storeys he Colosseum and the colossal statue of Nero from which name is derived; the barracks for the sailors employed ig the sun-awning to protect the spectators; the barracks the gladiators and arenas in which they practised; the nan Forum in every detail excepting, of course, the well- wn Phocas column erected some four hundred years later; Cæsars' Fori and their palaces on the Palatine; the itol; the Baths of Constantine; the altar on the Quirinal, ed to mark the spot where the burning of the city was ested. Facing this is the Doric Temple, on the spot where nulus appeared to the Romans after his death, telling m that he was to be deified under the name of Quirinus. this spot now stands the Quirinal Palace of the Kings Italy. After studying this model, modern Rome takes quite another aspect. We can live back in the days of Republic or of the Empire. The present busy Corso is itically the same as the Via Lata and Via Flaminia. Column of Marcus Aurelius is in the identical spot that vas, and the busy Piazza has practically the same form. enormous solarium or sundial has now disappeared. It situated between the column of Marcus Aurelius and Mausoleum of Augustus, and was formed by a marble ement inlaid with bronze lines. The gnomon was formed an Egyptian obelisk of the seventh century B.C., which stands facing the Chamber of Deputies. The mere con- plation of the photograph and plans, herewith, is most inating. When the lights were adjusted to give a moon- it effect or the effect of the rising or the setting sun, the ilt produced in silhouetting the contour of the ground the buildings was most impressive. So impressive, that elieve among many it will be the last picture to fade n the many pleasing impressions we carried away from Ninth International Congress of Architects in Rome. excellent arrangements made for the comfort of the nbers by Mr. John W. Simpson, F.R.I.B.A., the Hon. retary, British Section of the Permanent Committee, were itly appreciated, among others by—Yours faithfully,

(Signed) R. G. Lovell.

RANSLATION OF THE RESOLUTIONS PASSED.

First Meeting.—October 4.

Subject VI.—The desirability of a dictionary of compara- architectural terminology. The following resolution carried:—

The Congress recognises the desirability of a dictionary comparative architectural terminology, and resolves that Permanent International Committee of Architects should anise an International Commission who shall continue work commenced and present its work at the next Inter- ional Congress.

The Congress is of opinion that drawings and sketches should accompany the text in order to make the definitions clear.

Subject IV.—Considerations as to Modern Architecture. On this subject the Congress was of opinion that no resolution should be voted.

Second Meeting.—October 5.

Subject III.—Technical and artistic education of the Architect and the Architect's diploma. The exercise of his profession beyond the limits of his own country. The Congress carried these resolutions:—

1. That the right to use the title of Architect should be reserved to those who have obtained it as a result of a proper examination passed after an artistic, technical and scientific education.
2. That the title of Architect should be placed in the same rank as the title Master of Arts, Doctor of Medicine, &c.
3. That the schools of architecture may be varied in different countries, while adhering to the same general rules.
4. That students should not be able to enter schools of architecture until after having obtained in previous schools the same general culture or a similar culture to that which is required in the other professions.

Extra Subject—Copyright.

The Congress draws attention, on the one hand, to the resolutions on copyright made during the last thirty-four years at the International Congresses of Architects and also at the International Congresses of Literature and Art; notably at Madrid in 1904, at London in 1906, and at Vienna in 1908.

The Congress draws attention, on the other hand, to the progress accomplished during the last thirty-four years in European legislation for the protection of architectural works, notably the Spanish law of 1879, the French law of 1902, the German law of 1907, and the Convention of Berne, 1886, and by the Conference of Berlin of 1908, and the Congress also draws attention to the resolution made at the International Art Congress held in Rome in April 1911, when uniform protection was declared legitimate for all works of art, including architecture, during the life of the author and at least for fifty years after his death.

The Congress resolved:—

1. That architectural work should be protected in all its artistic aspects.
2. That architectural designs, including the designs of exterior and interior façades, the plans, sections and elevations and the decorative details, constitute the first evidence of the thought of the architect and of the architectural work.
3. That the building is only a reproduction, on the ground, of the architectural design.

The Congress confirms the resolution that architectural work, and all the designs which compose it, together or separately, also that the construction and all other reproductions, should in all International Laws and Conventions be protected during the life of the author and during a minimum period of at least fifty years after his death, in the same manner as all artistic works of painters, sculptors and others.

Third Meeting.—October 7.

Subject I.—Reinforced concrete, the mode of using it in different countries and how it may be applied to great buildings as regards the technical and the decorative point of view.

On this subject the Congress determined to pass no resolution.

Fourth Meeting.—October 9.

Subject II.—Duties and rights of the architect with regard to his employer.

First resolution. The Congress decided that the architect should under no pretext receive fees except from his employer—State, town, administration, or individual.

2.—The Congress decided to refer the further study on this subject to the permanent committee.

Subject VII.—Foreign Academies in Rome: Their history, the studies and works of the pupils, their influence in their respective countries.

No resolution was passed.

Fifth Meeting.—October 10.

Subject V.—The carrying out of architectural works for the State or other public bodies.

The Congress repeated and confirmed the resolution made in London in 1906. The Congress considered that it was necessary to carefully observe in principle a very clear division between the practice of the art of the architect and that of the engineer, and consequently the following resolutions were passed:—

1. That architectural works intended for the State, municipalities, or other public bodies should only be entrusted to qualified architects after competition or otherwise.

2. That with the object of obtaining monumental buildings embodying all the essentials of art, the schemes, in all cases, must be prepared by qualified architects and, before the work is put in hand, the schemes must be submitted to the approbation of an institution such as the Académie des Beaux-Arts, or to Committees the majority of whose members are architects.

Extra Proposition.

The Congress begs the Government of Italy to take the initiative in the formation of an International Commission of representatives of countries subjected to earthquakes in the following manner:—

a. To unite all the studies and the works which have been made, and are being made, in all that concerns earthquakes, and also the stability of buildings in earthquake countries. *b.* To elaborate general regulations and local regulations for constructions to be built in these countries; and to require the representatives of the foreign countries present at the Ninth Congress of Architects to ask their respective governments to create seismatic stations, where they do not yet exist.

And to ask that the earthquake commissions should be composed not only of learned geologists, but of architects and engineers, in order that these commissions may, by their work, contribute to the technical and artistic solution of the question of stability of the constructions in earthquake countries.

THE ARCHITECTURAL ASSOCIATION.

(*Concluded from last week.*)

AFTER the reading of Mr. Raymond Unwin's paper on Town Planning on October 16, the following discussion took place:—

Mr. S. C. Ramsey said that the word "regular" as applied to towns, he took it, meant that which had been planned to a preconceived system; while the word "irregular" meant that which had been built up unit by unit, being no part of a complete scheme and controlled only by immediate requirements. Obviously any preconceived system must provide for and meet all the conditions of the problem. The American gridiron type was a very elementary idea of a formal plan. St. Louis, Chicago, and Washington are all now considering schemes of reconstruction in order to avoid the defects of their original lay-out. That curved lines of plan and undulating surfaces were not incompatible with formal design was illustrated by Edinburgh, which, according to Craig's plan, was to be a formal town on hills. There seemed, broadly speaking, to be three different types of towns. First, there were the types of cities or towns that have been built on ordered and regular lines. In recent times for instance there were the plans of Haussmann for modern Paris, of L'Enfant for Washington, and of Craig for Edinburgh. Both the Greeks and the Romans seem to have realised the mistakes in their confused capital cities, for in their colonial cities one finds often absolutely regular and formal plans. Among such Greek cities are Ephesus, Miletus, Priene, and Rhodes; and in Roman cities are Treves and Silchester. The second class are towns or cities that have grown fitfully, either entirely uncontrolled or controlled only partially, such as ancient Rome and Athens and most mediæval cities. Rome was unity itself in the lay-out of separate buildings like the Forum, baths, and public places. These symmetrical units, however, were unsymmetrically arranged. The third type of cities is a combination of the two previous types in which the formation was partly due to growth and partly to pre-arranged planning. Under this head come most modern towns, such as London, Dublin, Glasgow, Bath, Ramsgate, Margate, Hastings, and Dublin. In London one must particularly regret the loss of Wren's plan. The confusion of the central part of the metropolis should be contrasted with the comparatively well-ordered west and south-west districts which possess such centres as Cavendish Square, Portland Place, Regent's Park, Regent Street, Belgrave Square, &c. The desire for formality is shown by both ancients and moderns, and no city of any importance has ever been purposely laid out on any but formal orderly lines. The basis of town planning to-day is the question of population. The opportunity of building an entirely new city hardly ever presents itself. We are now chiefly co
cerned with city improvement, or re-construction and d
velopment, and in providing for sections of the communi
as in garden cities and suburbs. The real aim of all su
efforts is the creation of a delightful environment. T
advantages of the formal or preconceived type of town pla
ning in dealing with modern problems include the followin
the proper distribution of a city into residential distric
by zonification or stratification, business districts, comm
cial zones, park systems, and pleasure places; the provisi
of proper communication between the parts; the anticipati
of traffic problems; the consideration of future extensio
and the grouping of buildings with reference to their relati
use. It was a pity that Mr. Unwin in his paper did n
dwell at greater length on the position of the architect
relation to the town and the architectural expression su
able to a town planned on formal or regular lines.
himself would venture to suggest that the more importa
buildings alone should demand conscious attention, leavi
the rest to be subconsciously felt. This is illustrated
comparing the modern streets of Paris with the mode
streets of London. In going up the narrow streets of
cathedral town we see the fine general effect of the rich co
fusion of lines, both vertical and horizontal. The dang
of individualism lie in the resultant loss of monumental a
architectural effect. For an example of this one mig
compare the Regent Street of ten years ago, when it w
a type of formal architecture, with the present Kingsw
In his inaugural lecture on Civic Design at Birmingh
University Mr. Raymond Unwin, when speaking of
architect, declared that he may in the design of his bui
ing consider the total effect of the town as more importa
than the individual prominence of his own buildi
Again, Mr. Unwin in the paper just read had said in ref
ence to the influence the town-planner should exert on
buildings which go to make a town:—"He will be able,
a greater or lesser extent, to influence the result by det
mining the position of main buildings, and sometimes
fixing frontage lines, and limiting the heights and char
ter of the building." If the architect can accompli
this he will have achieved a noble work, and have done m
than anything else to bring about the unity of expression
our towns and cities which should characterise the work
a great and progressive nation.

Mr. W. Curtis Green, F.R.I.B.A., said he had recen
re-read a very interesting paper entitled "Comparat
Desirability of the Formal or Irregular Treatment of Str
Architecture in Large Cities." It was by Mr. A. Mary
Watson, and won the Royal Institute essay medal in 19
The paper seemed to have a great deal of wisdom and shre
ness, and to be well worthy of being read by all studer
Mr. Maryon Watson had many interesting things to
about the formal and irregular. One of the points m
was that there were two different sets of people to be c
sidered: one was the man in the house, the other the man
the street. In his (the speaker's) opinion, now that arc
tects want to work towards some definite scheme, there w
a great many difficulties to contend against in the for
movement. Regent Street, for instance—our finest exam
of a formal treatment—was gradually being destroyed.
city development was a question of use, and architects
to decide whether their work was to be of a perman
character or whether their buildings were to be taken do
when the immediate use was at an end. It was necess
to understand that in this formal movement there was so
thing more than the mere formal architecture.

Mr. G. H. Jenkins said that there were one or two thi
in Mr. Unwin's remarks which struck him as being cont
dictory. For instance, many of the views he had shown
the screen showed a formal plan around a building fad
away into informality in the gardens. It seemed to b
fine thing, if the centre of a town were planned on for
lines, for it to become less and less regular as the hou
got further into the country, where there is more opp
tunity for making the lines informal. Nearly all the
amples given on the screen suggested two ideas. One wa
fine formality, and the other was absolutely at the oppo
end of the pole. That variety seemed to him to be
crux of the whole matter.

Mr. A. E. Richardson contended that irregular to
planning competed with nature, and in doing so betra
its own littleness, while the formal line struck a contrast,
was to be seen in many great cities in England, and in Ed
burgh. He noticed that Mr. Unwin had displayed on
screen views of only German and foreign architectu
London's architecture was comparatively unknown to m
people. He would recommend a study of the squares

elgravia and Bloomsbury, and a comparison of such a ondon building as Somerset House with any of Paris. ost of the London squares had been built around fields hich, instead of being built upon, were enclosed. These reets were self-supporting, and formed residential centres all that was best. In his opinion London offered some of e best examples of town-planning in the world. If irre- lar town-planning was cited he would refer to the setting the Royal Exchange. Here the streets were allowed to cut most awkwardly.

Mr. A. E. Bullock, A.R.I.B.A., pointed out that in the dy of town-planning they had to go back a very long way deed. He was, therefore, particularly pleased to see nong the lantern views a restoration of Ephesus. They ked on Hippodamus of Miletus, who was employed by the reeks towards the end of the fifth century B.C., as the ther of town-planning. The Greek plans were based on a ry clever idea. They were regular, and the axial lines re treated in a manner the present generation hardly alised the beauty of. When one came to Continental and glish town-planning, it is found that little advance has t been made in the matter of the traffic problem. The nk of England, for example, and Cheapside, are a con- ual trouble to the police. Town-planning, indeed, ap- ared to have been regarded from many points of view, but t from that of the traffic. It seemed curious that no one d thought of a good way out of the traffic difficulties. ren's plan, if carried out, would have prevented much of e present congestion. He quite agreed that attention ght to be paid to what had been done in the past in the est-End of London. Much of it was very clever. The escent, for example, helped very much in the lay-out. ound railway stations the roads ought to be wider.

Mr. C. G. Boutcher, A.R.I.B.A., totally disagreed with e statement by Mr. Unwin that the same principles applied a small garden suburb as to a large city. In his opinion e two were in direct opposition. A city was a thing of owth, and it was impossible to plan a city knowing exactly at would happen in the future. A week-end cottage did t include the problems as to axial lines that a large mansion l. The garden suburb should be planned so as merely to ke usefulness into account, as in the designing of small uses. But in the large city, where one was treating the mmunity as a whole, the formal treatment comes in. It uld be, in his opinion, limited to that.

Mr. F. M. Elgood, F.R.I.B.A., said the main impression had derived from the paper was that there could be little nder if every one was in favour of a formal plan, chiefly cause in formal planning one could see very definite results, d sometimes very magnificent results; whereas with in- rmal planning one cannot say how much of the effect is e to the designer and how much is probably from acci- ntal causes. The view given of Amiens Cathedral, with e buildings piling up around it, was, of course, instructive d very fine, but it had arrived in that way more or less accident. He did not expect that any one present would in a position to prepare plans for a new city except on per. But there were many practical opportunities offered the planning of garden suburbs. The previous speaker d insisted on the undesirability of formal designing for ch occasions, and especially on the absence of need for long, aight street lines in a small area. But he (the speaker) ieved that even if they began with a formal plan they uld have to turn eventually to the informality of the non- aight line. Another way of breaking up formality was break the frontage lines, so as to bring portions forward as to form what was something like three sides of a quad- ngle. With regard to the height of buildings, whereas re did not seem to be much room in the case of garden burbs for discussion or need for control, in city-planning re seemed to be very great need to keep down the height. gent Street of to-day was very different from the Regent reet originally planned, and the enormous height of the w buildings will gradually destroy entirely its effect. It uld be a very interesting subject to discuss how far the aracter of a building should be controlled in town- nning. He himself did not think it at all improbable t presently some provision may creep into such schemes, d architects will wake up to find that their designs must approved by some body more or less incompetent. If such tep could be brought about by architects taking the initi- ve, it would have a very desirable effect.

Mr. Gerald C. Horsley, the President, in closing the dis- sion, said it seemed to him that the balance of opinion s more in favour of formalism than of irregular town- nning. He would quote the following extract from a per read by Professor Haverfield, perhaps the greatest authority on ancient Roman work, at the Town-Planning Conference:—"Ancient life differed from modern in nothing so much as in its preferences for set and almost crystallised forms within which to express itself. This is especially seen in the form given to the town. It was an old form—the familiar rectangular street plan. That, I think, is the town plan which in all ages, till twenty or thirty years ago, men either invented or instinctively borrowed for their systematic town-planning. We meet it in early China, and in Greece from the fourth century B.C., and in mediæval England, and in many modern towns across the seas. The square and straight lines are, indeed, the simplest marks which divide man civilised from the barbarian!" That was a very interesting statement, and it explained, perhaps, the general preference for formalism in town-planning. The same feeling to have things done decently and in order is seen in the quotation made by Mr. Unwin of Ruskin's dictum about liberty. How necessary it was to confine one's actions within certain definite lines; how impossible to go through life without some distinct principles!

A vote of thanks was then passed by acclamation.

Mr. Raymond Unwin, in replying to some of the points raised, said that possibly he ought to have mentioned in his paper the different principles in favour of town-planning put forward in Germany. It was sometimes thought that formalism in the past arose by accident. Rather it arose from the fact that every one was working in one style with one general instinct, and did what was right in the particular style and time and particular opportunity. That was not quite the same thing as accident. Indeed, it approached nearer to the conditions which govern natural growth than any other condition existing in architecture. Whether architects would ever be able to work more freely because of a greater allegiance it was impossible to say. Nowadays the town-planner was handicapped by the knowledge that he possesses no idea what the next architect may desire to do. The argument put forward that there should be a difference between the planning of the suburbs and the centre seemed to him a very dangerous one. There was no sense in the statement that because one got away from the centre one had to be informal. In his opinion there ought to be the same formal plan, while bearing in mind the different class of buildings. He entirely agreed with much that had been said about London, where a great deal of useful work had been done. But not so many useful examples could be found in England as abroad. It would be unwise to go off into questions of conveniences for traffic or the distribution of areas, as both these matters were part of the useful function of a town plan, whereas that evening they had been considering rather the character of the expression of that useful function. The town plan is a bad one if it is bad for traffic and unless it satisfies all such requirements.

The next meeting of the Architectural Association will be on October 30, when Mr. H. H. Hill, B.A., will read a paper, to be illustrated by lantern slides, entitled "A.A. Excursion to the Loire, 1911."

ENGLISH MEDIÆVAL ARCHITECTURE.—II.

THE second of the course of lectures at University College, Gower Street, W.C., by Mr. Edward S. Prior, F.S.A., F.R.I.B.A., was given on Thursday afternoon, October 19.

Mr. Prior said that his first lecture had been one of verbal assertions. In all the others he proposed to set out his views pictorially.

The history of English architectural style started in the dark ages that followed the withdrawal of the Roman legions; its first steps would be intimately connected with the foundation of Christianity among the Saxon and Anglian settlers, who had driven the British to the western borders. During the four and a-half centuries between the coming of St. Augustine and the coming of the Norman Conqueror architecture in the British Isles had little or no creative life, and in building construction contributed little to the mediæval developments. In the Anglo-Saxon stone churches and in the Roman buildings which preceded them the forms of architecture were borrowed, and the experiment of native craftsmanship and constructive skill was retrograde rather than advancing. Indeed, all the earliest Romanesque in North-west Europe must be regarded as ineffectual so long as its ambitions were stereotyped to the idea of reproducing, as far as it understood them, the effects of the Imperial architecture that still loomed grandly in the memory.

Yet this period must not be omitted. The Saxon arts and the Saxon plannings of churches stand as the special background to English mediæval architecture. That background has its negative quality. There were wanting in England the large Roman remains seen in many French and German provincial cities, as also Roman tradition, which set a standard for Romanesque effort. Rather in the provincial style of Roman building in England there was left a degradation of Classic detail and a simplification of the Classic orders for domestic construction. Columns with their capitals and bases had lost the marble characteristics and showed a preparation towards the strips and balusters of Saxon style.

Bede says that stone-building (Mos Romanus) was brought to this country from abroad by missionaries in the seventh century, and that it superseded the existing wood-building (Mos Scoticus). The Anglian crosses of North England show this foreign origin in their carving. Fragments of about a hundred are left, and they are among the most remarkable monuments that remain in West Europe of the arts of the seventh and eighth centuries. The continuance of the craft of this relief sculpture witnessed to an early Christian civilisation in Northern England. Yet this culture was conditional by its being missionary; the motives of its figure-work and ornament were not native to the peoples of the North, but show figures of classic pose and details from the ivory carvings of Alexandria. So, too, St. Wilfrid's churches at Ripon and Hexham must be taken as the transplantation of an alien architecture. As is the fate of an art of copyists, this early blossom of English art, since it grew from no native constructional style, did not develop any progress.

As far as the carving was concerned, the Anglian art was worse than unprogressive: it grew year by year less accomplished, and finally grotesque. To the age of the Anglian work there succeeded that of the Celtic crosses. From the ninth to the eleventh centuries the British Isles were subject to Scandinavian marauding. It was being continually repaganised and then being brought back to Christianity by the Neo-Celtic or Irish culture. In the later crosses, therefore, both these foreign elements of decorative carving are mixed.

The missionary preaching cross may be taken as the site on which was later erected first the wood church and then the stone one. These early churches were modelled on the two sources from which the pagan Saxons received Christianity. Where the Celtic (or Irish) church gave the missionaries, the sources of style were Celtic. Where the Roman or continental church was the Christianising influence, continental style made the tradition. The Celtic church-building was strongest in the North and West of England. At Heysham, on the Lancashire coast, is an example of a single-chambered chapel that is called the Chapel of St. Patrick, and seems of Irish make. The continental influence may be recognised in its bearing on the earliest church plan of the South of England. Out of these two elements was being developed in a mixed way that English plan which may be called our "small-church" plan, that name distinguishing it from the much more ambitious monastic plan that came to us from abroad with the Conquest and which may be called the "great-church" plan.

In the Saxon building of these "small-church" plans it is convenient to recognise three stages: the first as belonging to the first evangelisation of the Saxons in England and to the two centuries following, which were in northern and middle England times of comparative culture and ease. Representative of this period is the monastic church at Brixworth, Northants, c. 700. Its adoption of Roman models is distinct, and all the features show a close relationship to the first continental missionary churches. The second stage ranks with the times of the Scandinavian and Danish raidings. The constant burning of churches and monasteries gave no chances for the experiments of a constructive architecture in England. Nevertheless to this period is attributed the church of Deerhurst, Glos., with its development of planning beyond the earlier Celtic or Roman types, and above all with its many storeyed and double-chambered tower at the west end. This latter is reminiscent of what they had just begun to do in Germany. The third period of Saxon stone-building came as more peculiarly English in the more established government of the latter part of the tenth century. The church of Bradford-on-Avon embodies the native Celtic traditions of church plan—viz. that of a congregation of small oblong chambers—rather than the open-aisled basilican arrangement which the "Roman" monastic churches had exemplified. Other points of difference are: (1) the square sanctuary (in place of the apsidal east end); (2) the narrowed chancel-arch (as contrasted with the pillared screen of Canterbury or Brixworth); and (3) the projection of transeptal porches (instead of the west work of Deerhurst). In this building the earliest tradition of the Celtic church ran on into the after story of English church-planning.

The Saxon building art is marked by great dexterity, no to say elegance, of craftsmanship as far as the dressing o stone and its piecing together is concerned; but by a non-progressive, because non-constructive, science of building. Particularly the arch is timidly and, from the point of view of construction, ignorantly built; its span is usually kept very small, the arches most often are not properly radiated. Th arch was a formula, not an expression of construction. Th art of buttressing in order to counteract thrust is not understood; the walls are built with external projections that tak the shape of pilaster strips, or they are treated with arcade that show no knowledge of building arches, but are merel decorative adjuncts founded on the tradition of Roman style The workshop in which arose these meagre parodies of Roma detail was that of Charlemagne's northern empire. Our mos native form was the baluster shaft, which is traceable t Roman times. A second Saxon peculiarity appearing her and there in doors and windows was the leaning jamb of Celti origin. Another lingering tradition was its use of larg stones. These characteristics are well illustrated by the towe of Earls Barton, c. 950. In the west tower lies one of th chief points of interest of Saxon architecture. The familia lofty unbuttressed western tower, square, sheer and uncompromising, had its source thus early. The motive for suc Saxon erections must, it would seem, have been primaril that of refuge combined with defence.

In the plans of Saxon times the types of the Englis church were established. The variety of small-church planning grew from mixing the basilican traditions of the earl missionary monasticism with the many-chambered usages o Celtic oblong form. Among these there appears, too, th influence of the cross-plan of churches—a method which wa the adaptation to the purposes of North-west European styl of the Byzantine domed church. This appeared in Saxo plans some time before the Conquest. The most importan Saxon uses which appear afterwards acting on the style o English churches were as follows:—(1) The square-ende gabled chancel; (2) the narrow chancel with its idea of enclosure for the sanctuary; (3) the side porches which we perpetuated in the porches, transepts and chantry projections; (4) the exiguous habit of west doorways; (5) the squa tower, particularly at the west end; (6) the baluster— which evolved the Purbeck marble shaft; and (7) the Iris Viking stone-carving. After the Conquest these elements reappear as a tendency which the subsequent development English mediæval art strengthened and amplified, and s made English architecture a different thing from the continental.

TWENTY-SEVENTH ANNUAL REPORT OF TH COUNCIL OF THE SOCIETY OF ARCHITECTS

(*Concluded from last week.*)

Reports of Committees.

In considering the following reports it should be born in mind that the completion of the various schemes development has been delayed by the negotiations with t Royal Institute.

Literature Committee.—This committee have held si meetings, the following being the principal matters dea with.

The papers read and discussed and addresses given durin the session were:—

1910.—November 17, Presidential address; December 1 "A Great London Improvement Scheme," by G. A. Middleton, A.R.I.B.A. (past Vice-President).

1911.—January 12, President's address to students February 9, "The Turned Lattice Work of Egypt," Colonel F. S. Leslie, R.E. (Hon. Secretary); March 9, "Th Relation of Sculpture and Carved Ornament to Architecture," by W. S. Frith; April 6, "The Evolution of Form i Silver Plate," by Percy Macquoid; May 11, "Hospitals, by A. Saxon Snell, F.R.I.B.A.

Arrangements have been made whereby the Society' Journal will be found in the reading-rooms of the publi libraries in Bradford, Brighton, Bristol, Cambridge, Cardif Derby, Dublin, Edinburgh, Glasgow, Hull, Leeds, Lincol Manchester, Middlesbrough, Newcastle, Norwich, Nottingham, Oxford, Plymouth, Sheffield, Sunderland.

The loan library continues to be well used, a large numbe of volumes having been issued during the past year, the greater part of them through the post.

The library has been reorganised, additional shelving accommodation has been provided, and the books catalogued on the card index system and numbered, with a view to facilitating reference by borrowers and economising the time of the staff.

Gifts of books and donations to the Library Fund have been received from a number of members, authors, and publishers, to whom the thanks of the Society are hereby accorded.

Examination Committee.—This committee have met ten times, the following being the chief items under consideration:—

Examinations to qualify for membership were organised and held during April and October in London, Manchester, Leeds, Cardiff, Birmingham, and Oxford. The number of candidates has considerably increased, but the percentage of successes is still very low.

The following members organised the Centres or acted as Moderators:—London, Colonel F. S. Leslie, R.E. (Hon. Secretary), and Mr. B. R. Tucker, M.R.San.Inst.; Manchester, Messrs. A. J. Murgatroyd (Vice-President, Local Hon. Secretary), and Tom Cook; Leeds, Mr. W. S. Braithwaite (Local Hon. Secretary); Cardiff, Messrs. Cholton James, F.R.I.B.A. (Local Hon. Secretary), and G. A. Birkenhead (Member of Council); Birmingham, Messrs. J. Goodman and E. B. Davies; Oxford, Mr. G. A. Harrison (Local Hon. Secretary); South Africa, Mr. E. H. Waugh (Local Hon. Secretary), and the Board of Examiners of the South African branch.

To fill vacancies caused by the resignation of Mr. James Bartlett, one of the examiners, Mr. Richard Willock, F.R.I.B.A. (Member of Council), was appointed examiner in Subject III. (*a*) Contracts and Specifications; Mr. E. J. Partridge, F.S.I. (Member of Council), in subject (*b*) Quantities and Prices of that section; and Colonel F. S. Leslie, R.E. (Hon. Secretary), was appointed co-examiner with Mr. C. H. Mead (Hon. Librarian) for the correspondence classes.

The examiners' report showed a falling-off in the number of candidates and in the standard of work submitted in these classes.

The following students headed the lists in their respective courses, and have been awarded the prizes offered by the Council:—First year, E. R. Frimston (Old Colwyn), value £1 1*s.*; second year, F. P. Taylor (London), value £2 2*s.*; third year, D. H. Barry (Eastbourne), value £3 3*s*.

The attention of the committee having been called by the Council to the financial loss incurred by the correspondence classes, the committee after due consideration recommended that they be discontinued after the present session, and your Council have adopted the recommendation.

The membership examination scheme as a whole is under consideration with a view to developments and changes, but progress has been delayed owing to the negotiations with the Royal Institute.

Five sets of designs were received in the Travelling Studentship Competition, the subject for which was "A Social Club on a Corner Site." Mr. J. R. Leathart secured first place, and selected Norfolk and Sussex as centres for a sketching tour. Your Council has on the recommendation of the committee approved the work done, and the balance of the award together with the silver medal will be presented to Mr. Leathart in due course. The competition designs were exhibited in London previously to their being returned to their respective authors.

The committee regret that no entries were received for the architectural scholarship.

The committee have approved in principle a scheme proposed by the Students' Committee for more frequent competitions at stated periods, in design, measured drawings, and essays. Suitable awards to be offered.

The details are under consideration, completion having been deferred pending the result of the negotiations with the Royal Institute.

Your Council having adopted in principle the recommendation of the committee, that an entrance examination should be instituted for students, have referred the matter back to the committee to work out the details. The matter is in hand, but further progress has been delayed owing to the negotiations with the Royal Institute.

Practice Committee.—Fifteen meetings of this committee have been held, and the following matters have been dealt with:—

Concerted action has been taken in conjunction with the R.I.B.A. on several occasions where the conditions of public competitions have been considered unsatisfactory, and it is understood that in every case the members of the Society have loyally supported the action of the Council.

A number of cases on points of practice submitted by members have been received and dealt with by the committee.

The committee have under consideration the preparation of a code of ethics in connection with professional etiquette, but progress in this and other matters has been delayed by the negotiations with the Royal Institute.

On the recommendation of the committee your Council memorialised the Liverpool Corporation deprecating any alteration in the Podium of St. George's Hall, such as was threatened by the scheme for the proposed memorial to the late King Edward VII. Your Council suggested that an equestrian statue would in any case be out of place in the position proposed, and that it might be more fittingly placed elsewhere.

The present system of balloting for the election of officers and Council has received consideration, and a scheme has been adopted which will tend to secure greater secrecy in the ballot, and facilitate the work of the scrutineers.

A very large number of applications for membership and studentship have been dealt with, and the committee have under consideration a proposal for future developments, but this has been held in abeyance pending the negotiations with the Royal Institute.

The committee called the attention of your Council to the procedure adopted by the Ecclesiastical Commissioners in issuing detailed designs for Parsonage Houses, together with specifications and bills of quantities.

Your Council after due consideration approached the Ecclesiastical Commissioners on the matter, and have reason to believe that the protest made by them and by others will not be without effect.

On the recommendation of the committee, your Council, with the assistance of the Society's local hon. secretaries, circularised members of Parliament calling their attention to the Copyright Bill as affecting architecture, with the result that a considerable number of them undertook to give the Bill their consideration and support.

Mr. Percy B. Tubbs, F.R.I.B.A., Vice-President, was appointed by the Council of the Royal Institute a member of their committee dealing with this Bill, and was the medium of expressing the views of your Council on the matter.

The Bill has now passed the report stage.

Finance Committee.—This committee have met ten times, and have dealt with all matters involving the finances of the Society.

A building fund was opened at the beginning of the session to which a number of the members very kindly and generously contributed, but this matter in common with others has suffered from the feeling of uncertainty in the minds of members in regard to the future of the Society.

A sum of upwards of £2,500 has been spent on adapting and furnishing the Society's premises, and there remains an unascertained balance to be adjusted before the matter is complete. It has been found possible so far to provide for all the Society's requirements in this respect out of the funds and securities in the possession of the Society without making any permanent charge on the property.

With regard to the finances, it may be stated that during the negotiations with the Royal Institute, your Council submitted the books to the scrutiny of the Royal Institute's auditors, assisted by a member of their Council, with the result that they were satisfied that there was an ample margin of assets over liabilities in the event of the Society being then wound up.

The Society's financial year does not end until October 31, and therefore it is impossible to accurately forecast the result for the year, but it is anticipated that the finances will be found to be in a satisfactory condition, and that the surplus will be increased.

Mr. Ellis Marsland (past honorary secretary) was reappointed honorary auditor for the year.

A matter which your committee has under consideration, but which has been deferred for reasons previously stated, has been the establishment of a sinking fund by means of a policy of insurance, with a view to the repayment within a specified period of the capital expended on the premises.

The committee have had under consideration the cost incurred in carrying on the correspondence classes, and after due consideration expressed the opinion that from a financial point of view the continuation of the classes could not be justified. Your Council thereupon referred the matter to the examination committee calling their attention to the financial question, and as a result of the recommendation of both committees the classes have been discontinued.

General Purposes Committee.—Five meetings of this committee have been held, chiefly for the purpose of organising meetings and visits.

Last November a reception followed by a conversazione was held in the Society's premises, the guests being received by the President and Mrs. Bond, and the members of the Council. The students' prize designs, measured drawings and sketches were on view. The President and other members of the Council of the Royal Institute were present as guests of the Society.

The evening of January 12 was devoted to a smoking concert, and during the evening the President delivered an address to the students. A similar concert was held on May 4.

The twenty-seventh annual dinner of the Society was held at the Holborn Restaurant, on April 28, when some 230 members and their friends attended. A number of distinguished guests honoured the Society with their presence, than whom none were more welcome than the President and other members of the Council of the Royal Institute.

Visits have been made to the following buildings in progress and places of interest:—Royal Automobile Club, New Wesleyan Hall, model dwellings for the Sutton Trust, Festival of Empire (Crystal Palace), Building Trades Exhibition, and Lambeth Palace.

GENERAL.

The year has been one of continued progress and development, but as will have been gathered from the committee's reports, the work of the Society has been seriously hampered by the unfortunate delay in the completion of the negotiations with the Royal Institute.

Important proposals in connection with the extension of the library, the development and reorganisation of the examination and membership schemes and questions affecting every branch of the Society's work have been held up.

LECTURES ON HEATING AND VENTILATION AT UNIVERSITY COLLEGE, LONDON.

THE second of a series of six lectures on the "Real Nature of the Problems in Heating and Ventilating awaiting solution by the Engineer" was delivered by Mr. Arthur H. Barker, B.A., B.Sc., on Tuesday, October 24.

He had in the first lecture considered some of the root problems of ventilation and what constituted good and bad air, and now proceeded to consider the question of temperature requirements, or what constituted good and bad heat. Here also we are very much in the dark as to the truth, and it remains for the engineer to lead the way by providing satisfying conditions, the explanation of and reasons for which could then be left to the scientist. This was the mode of procedure that we had become accustomed to, although only a little thought was necessary for one to realise the saving of time, expense, and effort that would be effected were the men of science—in this case the physiologists—to point out what conditions were necessary to obtain satisfactory results from the point of view of health. Such guidance was, however, not forthcoming, and he remembered the case of the professor who showed that it was impossible, theoretically, to drive a golf ball more than three hundred yards. The following day his unfilial son upset this assertion by accomplishing a drive twenty yards in excess of this distance—a good example of what occurred when the practical person came to test the dogmas of the theorist.

There is no real point of separation between heat and air requirements, for the good properties of breathing air have been shown to consist more in their physical than their chemical properties. For example, the temperature and humidity of air were quick to affect our comfort by their effect on the skin. Many time-honoured theories as to temperature requirements have been exploded, as is evidenced by the change in our ideas regarding what were known as colds. It had been established that we were no more likely to contract colds in a low temperature than in a high one. Consumptives who had undergone open-air treatment in cold climates found that they were not only immune from colds, but were cured of their disease, which was probably due more to the cold than to the fresh air. The effort required on the part of the automatic temperature-adjusting mechanism in their systems, to supply the necessary amount of heat loss, so stimulated other organs that they were virtually enabled to build up fresh tissues by reason of the increased quantity of nourishment which they were thus enabled to assimilate. It had been generally accepted that efficient heating resolved itself into the maintenance of a uniform temperature of 60° F., but here again it became largely a question of custom. What, to some persons, were ideal conditions, produced in others feelings of discomfort, and it was necessary for the engineer to educate the public as to what constituted healthy conditions.

Many persons are not clear as to the true meaning of temperature, for a thermometer could be made to record almost what one wished, especially in taking readings of what was known as "the temperature in the sun." Could there be any accuracy in such a reading when the thermometer was subjected to the direct rays of the sun? The mere coating of the bulb with lamp-black would increase the number of degrees registered to a surprising degree. We must recognise this possibility in dealing with the temperature of a room, which was something between that of the walls, of the air, and of the radiations of any heating apparatus.

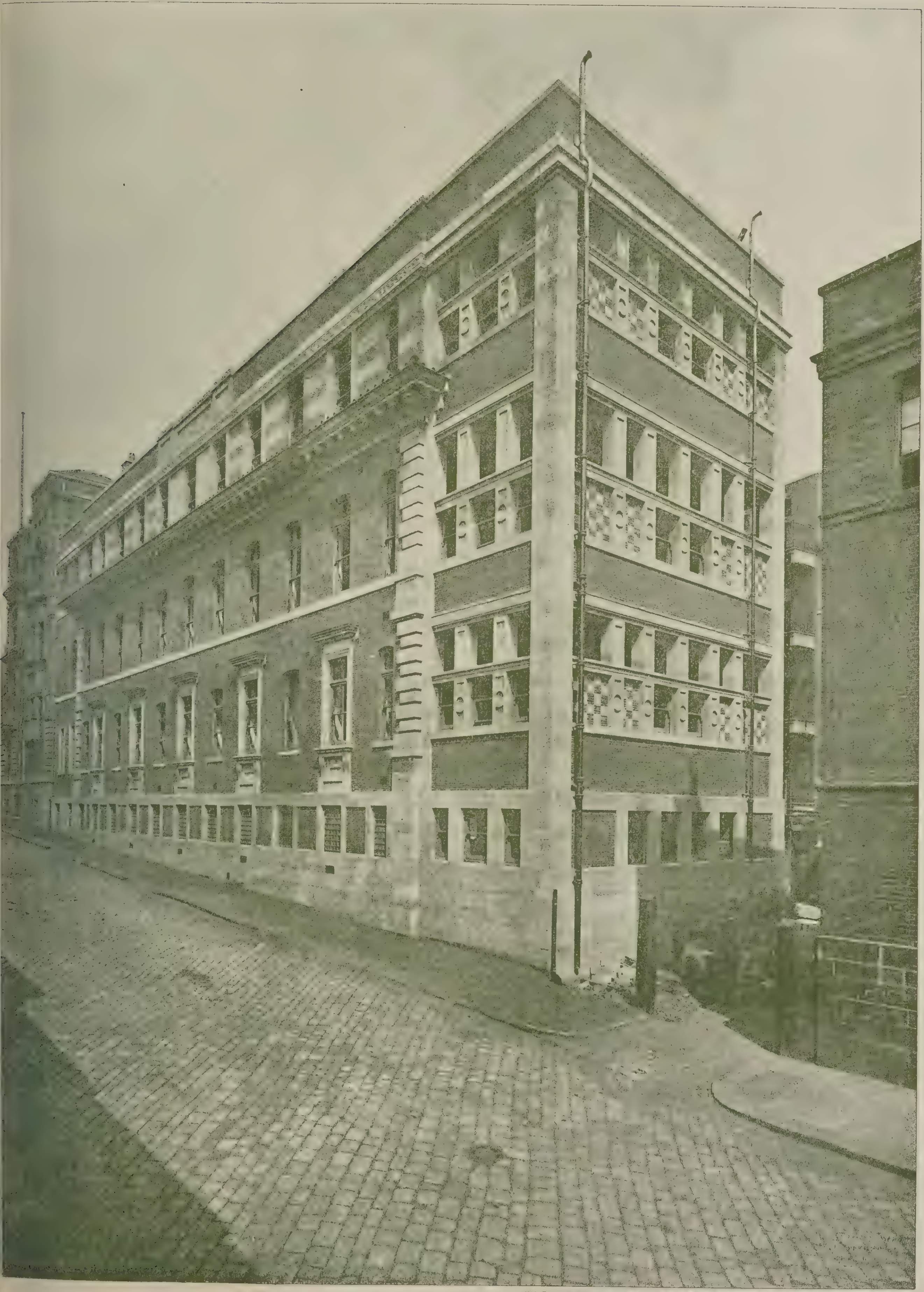
Comfort consisted of the extent to which heat was given off or radiated by our bodies. In a temperature of 60° F. an unclothed person would part with eight hundred thermal units per hour, which quantity would be reduced to two hundred per hour when clothed; the exposed surfaces being from eighteen to twenty superficial feet and three and a-half superficial feet respectively in these cases.

It is for the engineer to discover how much of this loss was due to contact or conduction and how much to radiation.

Another condition to be considered in rendering a room comfortable is that which takes into account how the occupants are employed. Hard work, excitement, and emotion all have their effect—differing in degree according to the individual—on bodily temperature. He had said that the heating engineer must take into account the temperature of the walls as well as that of the air. It is a question whether we should aim at producing warm walls and cool air, or warm air, the walls being left to take care of themselves as was the practice at present. His own opinion, backed up by experiments, was that the former set of conditions were to be sought after. His experience was that a room containing uniformly warm air produced an effect of dulness more conducive to sleep than active life, whilst cooler air currents served to keep the brain mobile. What conditions in Nature were found to be most pleasant and bracing? Surely those which existed on a bright frosty day, when the feeling of exhilaration peculiar to such weather was due not so much to the temperature itself as to the change of effect from frost to sunshine.

Passing to the question of economy he thought that it was patent to the thinking portion of the public that the recent announcement that within a given period our fuel supply would become exhausted was a most serious question. It would be the policy of the spendthrift to shut our eyes to this fact and to continue the consumption of our coal supply at the present rate, trusting to the future to solve the problem. So long as this fuel supply lasted just so long could we expect to hold our place as a successful commercial nation. It was now a commonplace that of the fuel used for the heating of inhabited buildings only, at the most, 19 per cent. of its energy was being used. The heating engineer, who was concerned with the 32,000,000 tons consumed annually for this purpose, must discover how to effect a reduction in this enormous waste and how to attain—and maintain—the requisite temperatures with the minimum expenditure of energy. The low cost of fuel had largely contributed to the prevalent waste, and the problem would gain in importance or prominence as this cost increased. Something might be done in the way of retaining the heat contained in vitiated air by extracting its bad properties. The energy wasted in producing heat for industrial purposes might also be collected, transferred, and utilised in domestic heating, where it was only required at low temperatures. The economy of heat-loss was the point where the architect could assist by providing houses of such design and quality that the loss of heat was reduced to a minimum. If a heating engineer were asked to guarantee the quantity of fuel consumption necessary to heat a building it would be pure speculation on his part to do any such thing; for so much depended upon the building itself as to the extent to which heat would leak through its walls and roof. This produced a consequent effect on the fuel consumption necessary to maintain a given temperature. The architect and builder were the best qualified to advance any such opinion, being familiar with the nature and quality of the design and construction of the building under consideration.

The Architect, Oct: 27th 1911.



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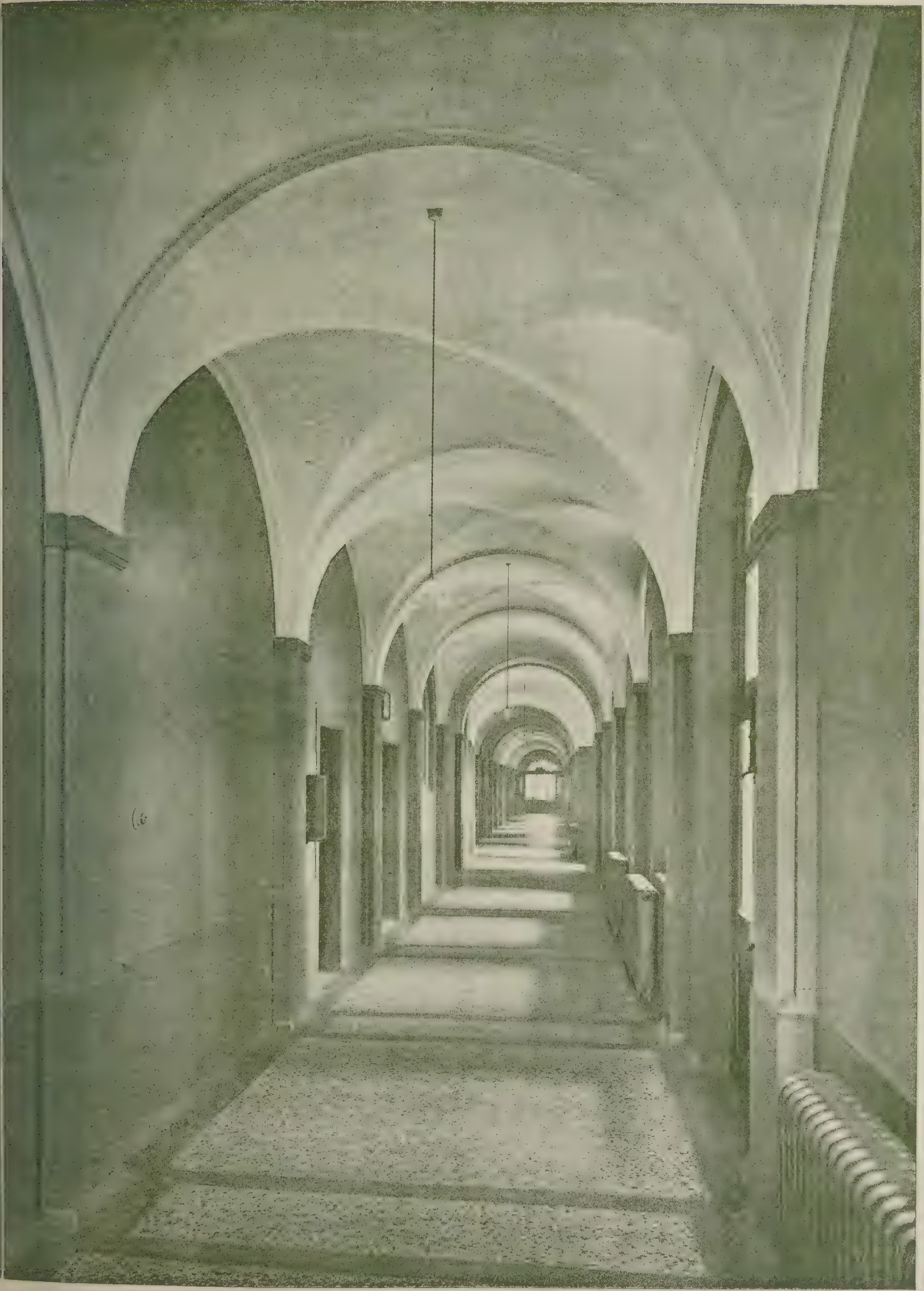
THE ROYAL HOSPITAL SHEFFIELD: ELDON WARD BLOCK.

Messrs. C. HADFIELD and C. M. HADFIELD, Architects.

UNIVERSITY OF ILLINOIS.

The Architect, Oct. 27th 1911.



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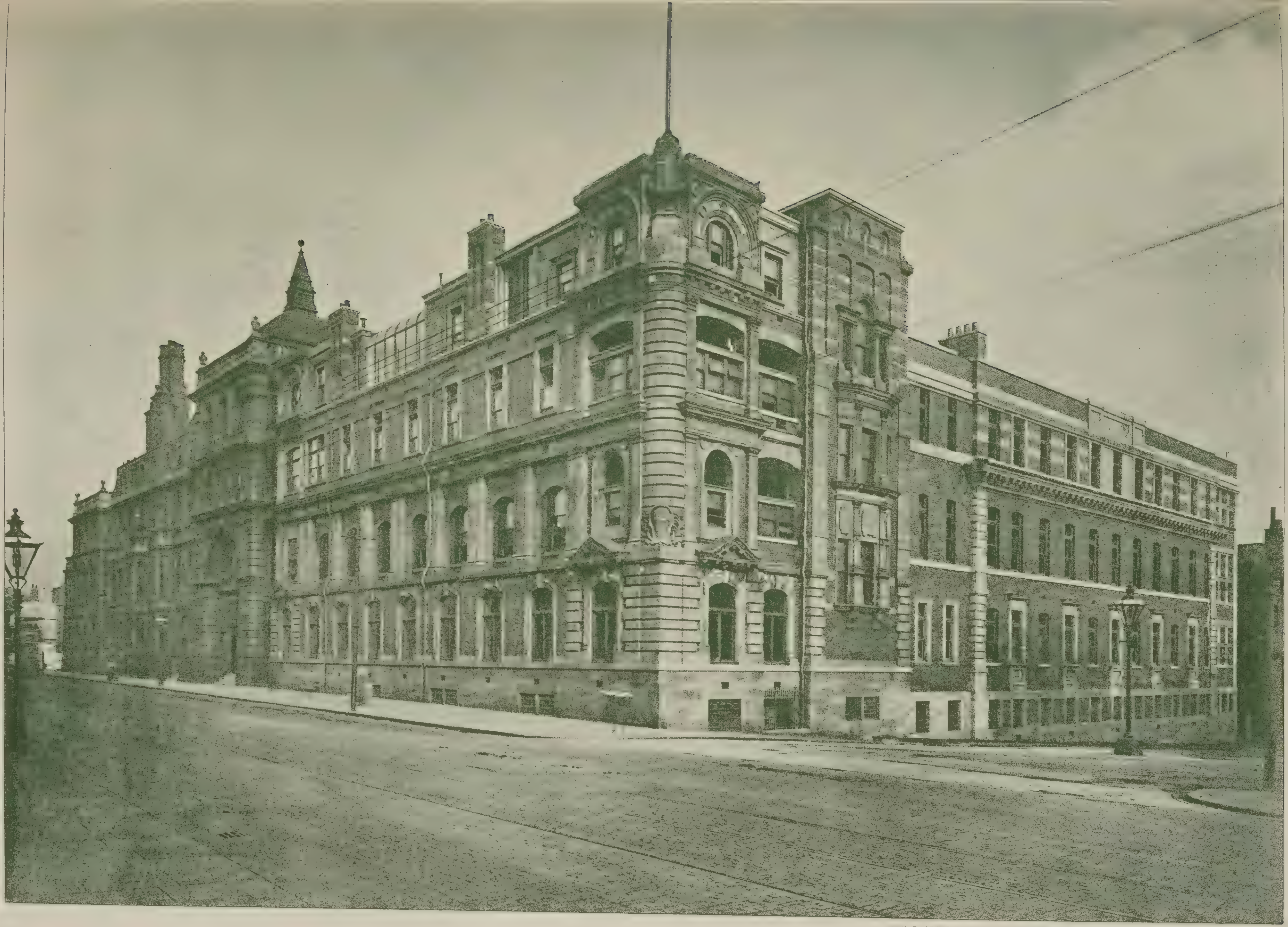

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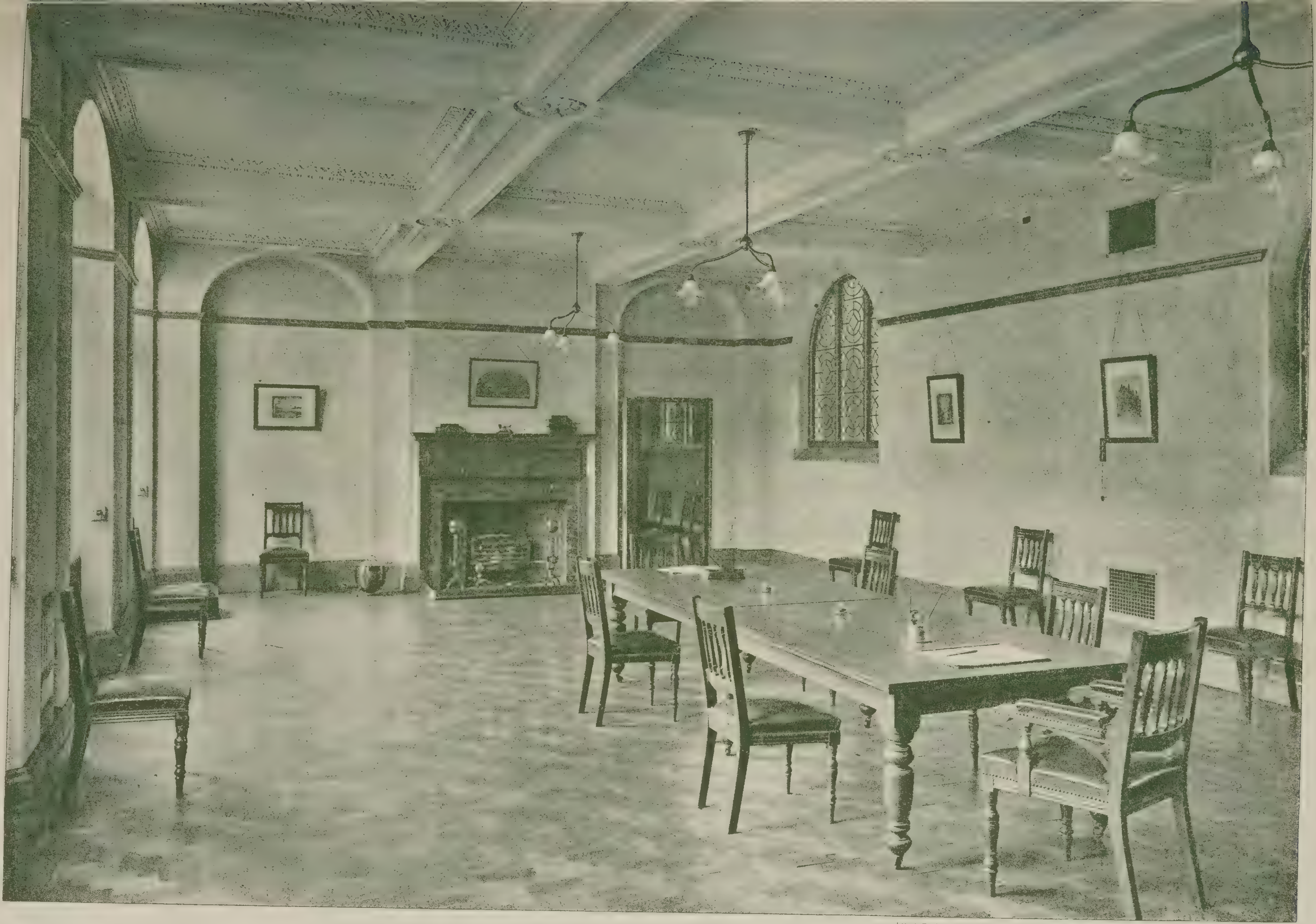

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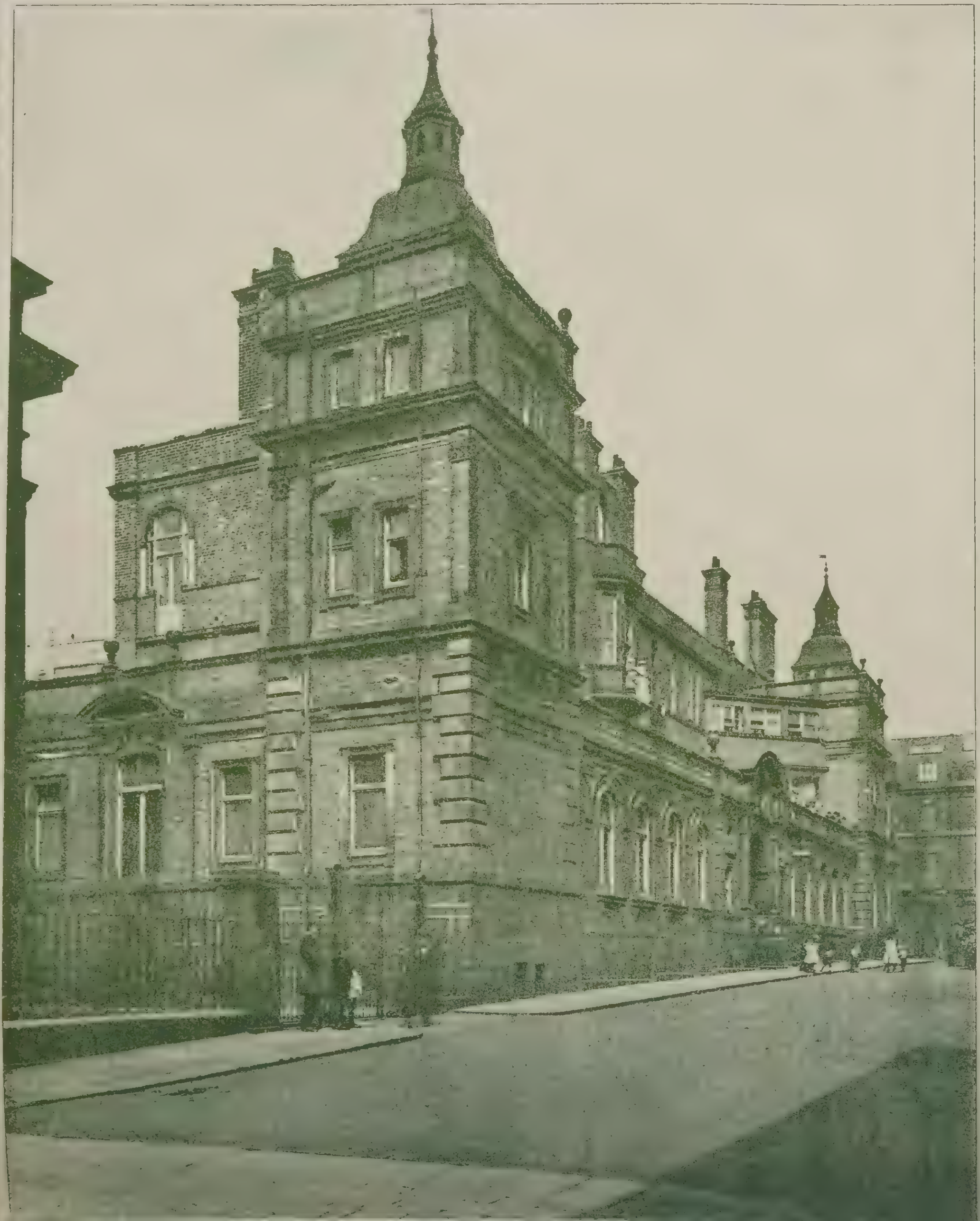

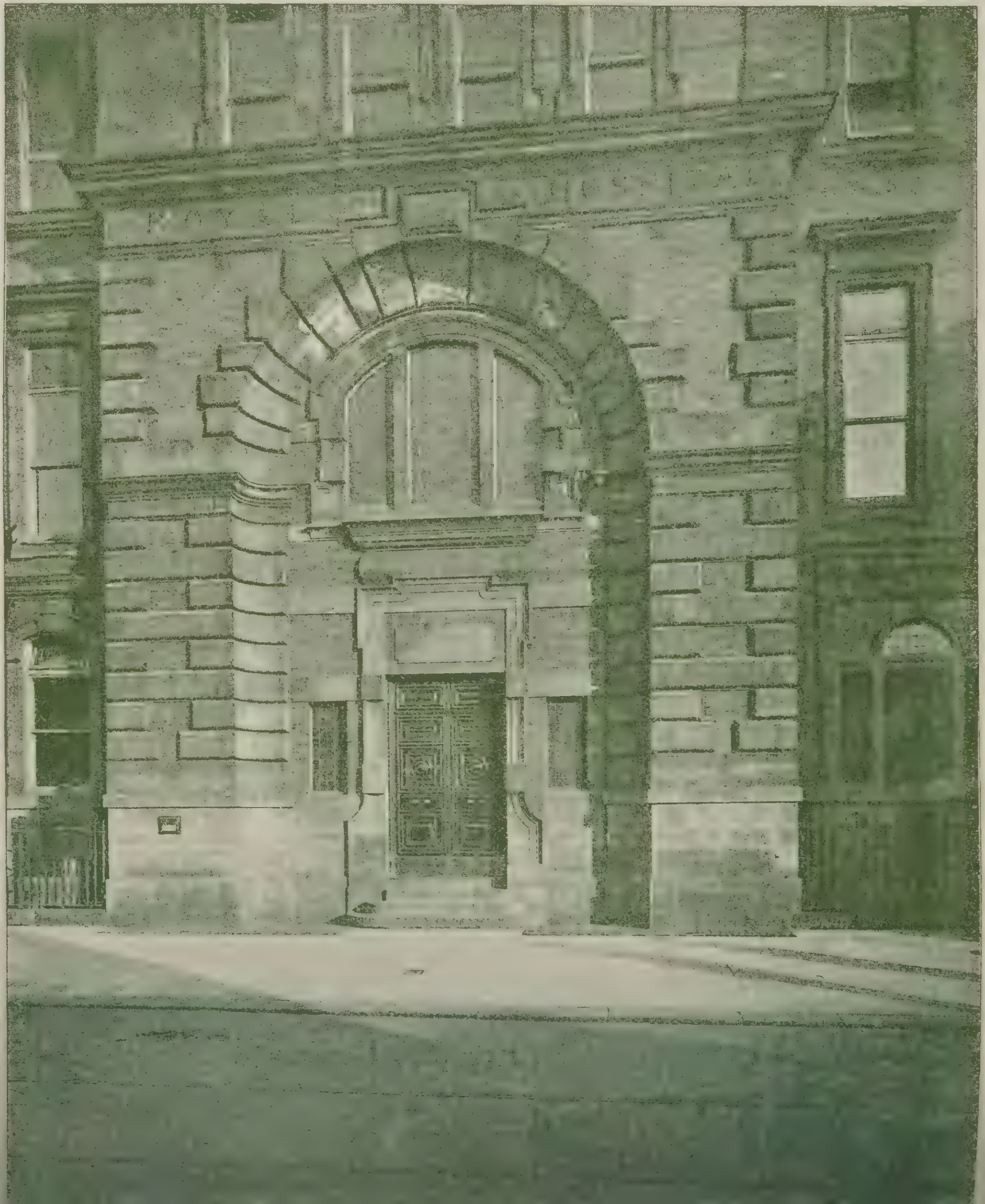

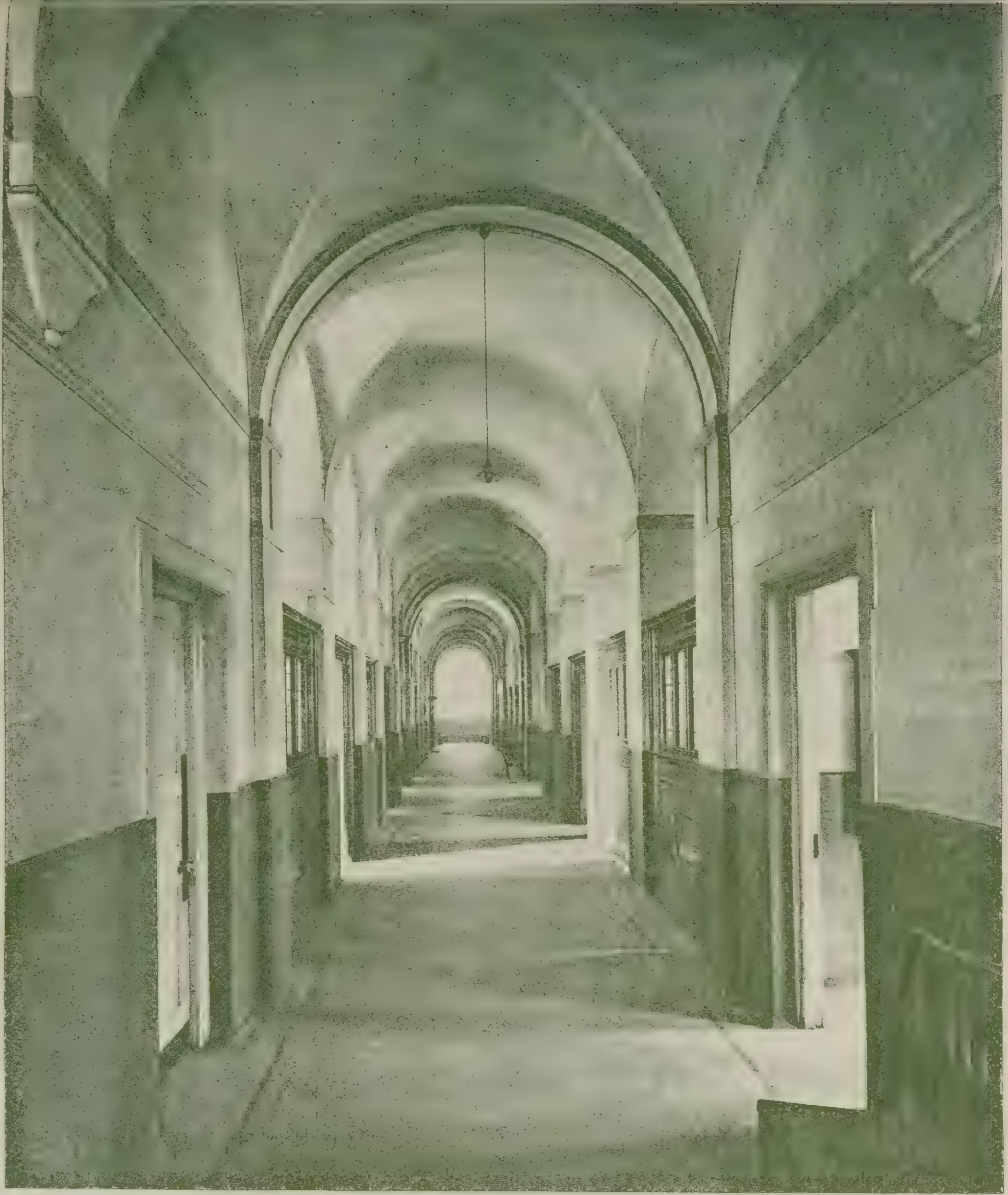

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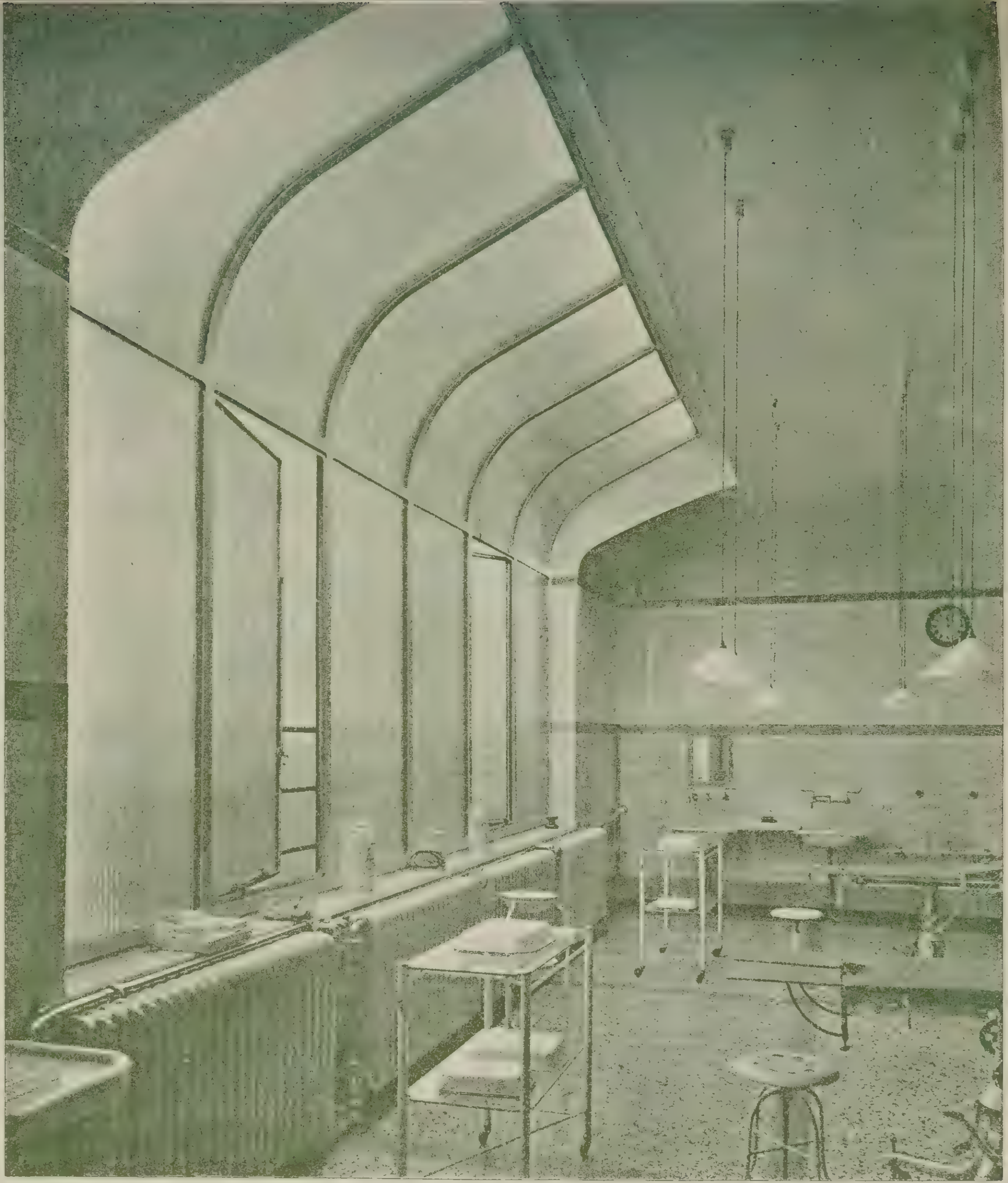

OPERATING THEATRE.

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THE ROYAL HOSPITAL, SHEFFIELD.

Messrs. C. HADFIELD and C. M. HADFIELD, Architects.

UNIVERSITY OF ILLINOIS.

The Architect.

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FORTHCOMING EVENTS.

Saturday, November 4.

Aberdeen Architectural Association : Intermediate Meeting ; "A Holiday in Central France," by Messrs. A. E. Payne, A.R.C.A., and Robert W. Gibbon, at 7.30 P.M.

Monday, November 6.

Royal Institute of British Architects : Opening Address by Mr. Leonard Stokes, President, at 8.30 P.M.

Liverpool Architectural Society : Opening Address by Mr. Arnold Thornely, F.R.I.B.A., at 6 P.M.

Tuesday, November 7.

Nottingham Architectural Society : Exhibition and criticism of Designs for "A Co-operative Stores in a Mining Village," at 8 P.M.

Institution of Civil Engineers : Opening Address by Dr. W. C. Unwin, F.R.S., President, and Presentation of Prizes, at 8 P.M.

Wednesday, November 8.

Manchester Society of Architects : Informal Discussion, to be opened by Mr. J. J. Burnet, A.R.S.A., Hon. LL.D., F.R.I.B.A., at 6.30 P.M.

Thursday, November 9.

Concrete Institute : Presidential Address by Sir Henry Tanner, C.B., I.S.O., F.R.I.B.A., at 8 P.M.

Sheffield Society of Architects and Surveyors : Paper on "The Architecture of Oxford," by Mr. W. S. Purchon.

ELECTRIFIED MILK—AND WATER.

In the columns of the *Daily Express* many of our readers have no doubt seen a number of articles and considerable correspondence under the subject-heading of "Electrified Milk," with reference to a process now being demonstrated by Mr. Douglas Browne. To the general public "electrified milk" is no doubt an attractive headline, and the possibility of preventing milk from turning sour and going bad is a matter of public health of considerable importance and interest to the community. It seems, however, that there are some people who do not admit that sour milk is necessarily bad, and who even go so far as to assert that sour milk is a cure for many ailments and its use a sure road to long life and sound health. The truth probably is that there are some micro-organisms of a beneficent nature that turn milk sour and others of a virulent character that also produce sourness or acidity. With the preservation of milk, however, we need not greatly concern ourselves in the world of architecture.

We are all aware nowadays that there are good bacteria and evil bacteria, and we need not further pursue the subject of milk than to recognise that absolute sterilisation may not necessarily be an advantage. Architects are, however, deeply concerned with the purification and sterilisation of water and sewage, and Mr. Browne by his process claims to be able to sterilise water and sewage as well as milk and other liquids. This claim appears to be substantiated by the experiments of Mons. Roussel (doctor of the University of Paris and expert to the Paris Law Courts), who has found that cultures of certain typical micro-organisms including bacterium coli and the bacillus of tuberculosis, when treated by Mr. Browne's process, were sterilised, and refused to develope; whilst Mr. Leo Taylor, F.I.C., experimenting with water containing the bacilli of typhoid, found that these also were sterilised by the process.

It must therefore be allowed that Mr. Browne by his process is able to sterilise certain micro-organisms of pathogenic character. Whether he at the same time destroys the activity of any good bacteria is a matter that has so far, we believe, not been investigated by bacteriologists. Nor are we aware personally whether such good bacteria are present in ordinary wholesome water, but from our knowledge of the action of septic tank and allied bacterial treatments of sewage, it is certain that here at least we have micro-organisms of utility to health, and, as water can also be purified—at least to the extent of the removal of pathogenic bacteria—by simple storage for a sufficient period it may be presumed that in ordinary water there are useful or good bacteria.

Many chemical means have of course been employed for the purification of water and the sterilisation of pathogenic bacteria; caustic lime, milk of lime, calcium hypochlorite, iron sulphate, and live steam have all been employed with greater or less success; but whereas these are injurious to fish life, we have it on the authority of the *Daily Express* representative that fish live in water sterilised by Mr. Douglas Browne, so that it would appear that, although the water is sterilised, it is not devitalised or poisoned.

We all know nowadays that hard water can be softened by chemical action, and in this respect also water electrified by Mr. Browne's process becomes soft, and so is economical in soap when used for washing; but there is a great difference in the potability of electrified water and distilled water, for whereas the latter is mawkish, flat, and unpleasant, the former is particularly pleasant and bright.

The electrification of liquids is carried out by Mr. Browne with electric currents of very low voltage passing through suitable electrodes of special composition, which is the principal element of the process. Electricity has been, and is being, used by other processes for purifying water, but these generally operate by the production of ozone from air, which necessitates the employment of very powerful currents of high voltage and frequency. The purification is therefore effected by ozonisation rather than by electrification, and demands special machinery for the production of the powerful currents required, whereas in the Browne process current can be taken from the ordinary supply mains with the help of a simple transformer.

As ozonisation—that is, the impregnation of water with ozone mechanically—has been proved to be effective in sterilising and purifying water, it might be supposed that Mr. Browne's electric currents act in a similar way by transforming the oxygen suspended in all ordinary water into ozone, but we gather that he rather favours the theory of a development of radio-activity in electrified water. The operation of purifying water by the Browne process has, on the other hand, an apparent physical similarity to some of the chemical processes, as in each case coagulation of suspended impurities occurs, and this is removed by filtration.

We understand that Mr. Browne is consulting Mme. Curie on the point of the presence of increased radio-activity in electrified water, as he is of opinion that this is one result of his process. Radio-activity, of which our scientific knowledge is only on the threshold, probably exists in all substances, and it has been found to be present to a greater extent in some natural waters than in others. Should the theory prove to be correct that the passage of electric currents through water endues this latter with considerable radio-activity, we are then face to face with the question whether this quality is, as it may be, of high medicinal value, or whether, like X-rays, it possesses potentialities for mischief as well as curative properties. Coming back again to milk, Mr. Browne already knows that the beneficial action which he claims can be rendered destructive by the use of currents of too high a power, that electrolysis rather than oxidation or ozonisation takes place, and we might therefore suspect that so great a radio-activity might be induced in water as to be injurious.

There are accordingly, it seems to us, possible potentialities in Mr. Browne's process that require careful investigation before it can be considered, as they say in the States, fool-proof, but we think it must be admitted that he has already shown that the process will purify water and sewage. The cost of this is another matter as to which definite figures are required. At present it appears that only a small amount of electricity of low power is necessary, that it is easily and readily applied, and that therefore it should ordinarily be cheaper than other processes already in use, whilst it certainly possesses the advantage of ready applicability.

NOTES AND COMMENTS.

The Manchester City Council has continued its ill-treatment of the architectural profession by deferring till December the consideration of the motion for the adoption of the report of the Special Committee on the successful competition plans for the new Art Gallery and Library. The Lord Mayor stated that no great hardship would be caused if the matter were postponed till the December meeting of the Council. Of course not, architects never feel it a hardship to wait for payment of money they have fully earned.

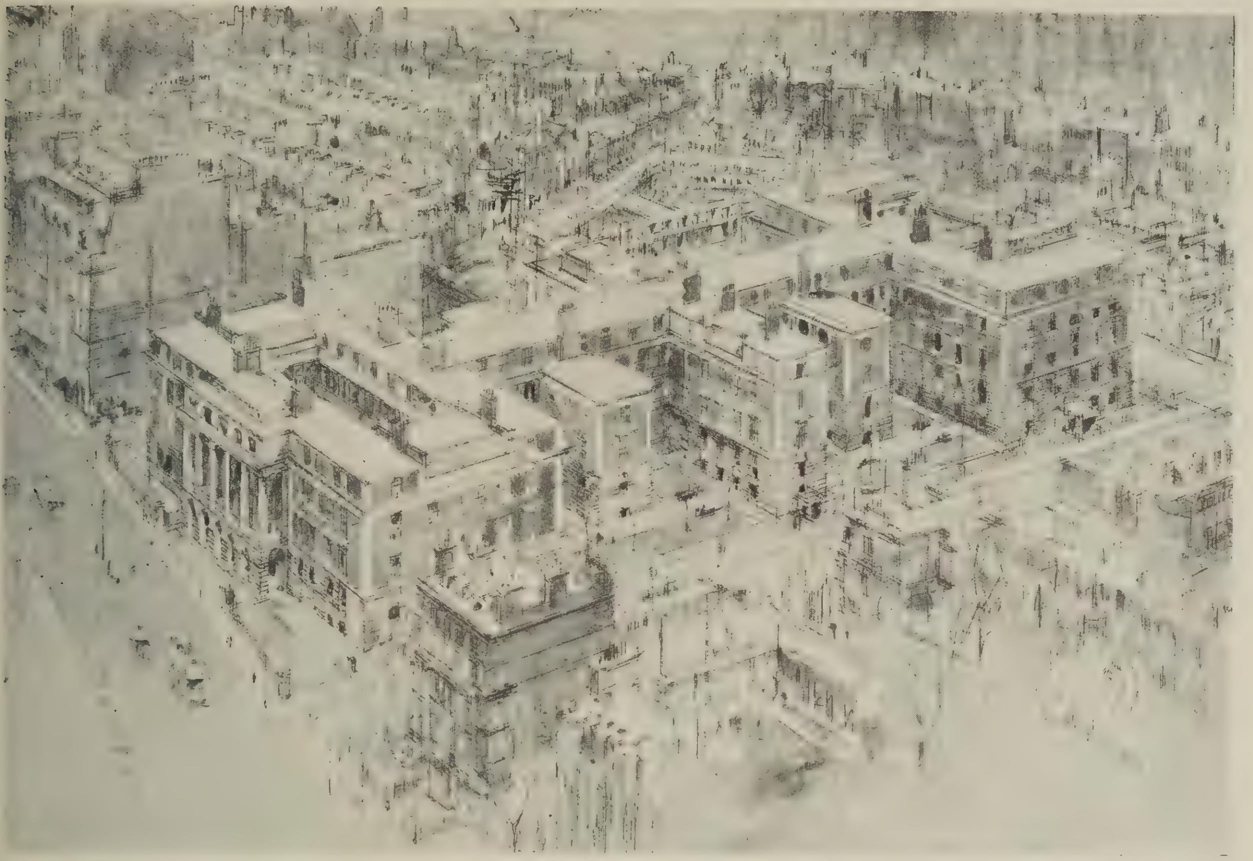
It seems that Manchester will finally decide what it is going to do, and do it a day or two after the Greek Kalends. It has bought the old Infirmary site cheap on the understanding that it should be used for a specific purpose, the erection of an Art Gallery and Library; but some of the citizens want to keep the site as an open space, others as a location for a new Exchange, and the advocates of each of the three schemes are all agreed on one point, that the partisans of any two should block the way for the third.

Mr. Raymond Unwin is educating the people of Birmingham in his lectures on town planning at their University in a manner that is causing them some astonishment as well as interest. In his latest lesson he said that it has sometimes been suggested that if we lessen the number of houses to the acre to about ten we shall spread towns indefinitely and seriously increase the distance from the centre. But he demonstrated, in opposition to this theory, that if the present area of Greater London was town-planned on the basis of Bournville or the Hampstead garden suburb, where there are not more than ten houses to any one acre of land, it would accommodate more than 12,000,000 people instead of its present 8,000,000. The overcrowding of houses in London and other large towns is not general, but local. In the most densely populated district in London—Southwark—there are 186 people to the acre, but the average of the whole of inner London (London County Council area) is sixty-four people per acre, while the City of London has only twenty-eight people to the acre. Two reasons were given why the increase of the diameter of a town will be unexpectedly small, even if overcrowding is absolutely done away with, provided it is properly arranged. The first is that the area increases in the ratio of the square of the diameter—the distance from the centre required to double the population is a constantly diminishing one; the second that careful planning will do away with the waste of land resulting from lack of adequate means of communication. In illustration he applies his figures to towns smaller than London: a circle, the radius of which is one and three-quarter miles, would accommodate 160,000 people, with not more than fifty people to each acre; but if we double this population we need add only three quarter miles to the radius of our circle, making it two and a half miles, to accommodate them.

We are glad to see a letter in *The Times* from Mr. Norman Shaw and Mr. Basil Champneys protesting against the proposed destruction of the present chapel of Balliol College merely because someone who can afford to pay for a new one does not like Butterfield's work. As the writers truly say, "By this wanton act of destruction Oxford will lose a valuable specimen of the art of the nineteenth century, the work of the greatest genius of the Victorian age. Whatever can be said against Butterfield, most architects agree in praising the dignity and originality of his work."

The Highways Committee of the Cumberland County Council seem to be inclined to persist in their vandalistic destruction of old Portinscale bridge, having adopted the view of their sub-committee and recommended that a new bridge be built at the cost of some £4,000, instead of repairing by grouting the old one for £800. We hope the County Council will accept the offer of Canon Rawnsley and Mrs. Slack, of Derwent Hill (the property nearest to the bridge), to guarantee the cost of grouting the bridge if the result is not satisfactory. Thus the Council have the opportunity of possibly saving the ratepayers £3,000 without risk, but with the advantage of maintaining one of the beautiful things of Cumberland.

Smoke abatement does not meet with the approva of Professor Arnold. In addressing a meeting of the Sheffield Electro-Metallurgical Society he asserted tha smoke was vitally necessary to the production of steel and particularly to that of the finest quality. "If yo start to tamper with the manufacture of this steel," h said, "by putting on restriction after restriction and, above all, if you try to limit the smoke our quality will be gone, absolutely and surely and I ask those who in a genuine way wan to reduce the smoke, to think what the communit is: It is a steel-making community. As in actual warfare you have to take some risks, so in industrial warfare and particularly in this metallurgical warfare, and so i does not do to take these Utopian ideas about smoke. I smoke is necessary for the industry, it must be endured or that industry must go. I am perfectly certain," h continued, "if there is anything like a crusade to sto smoke from metallurgical furnaces unreasonably manufacturers will not make their extensions in Sheffield, bu elsewhere, and so much money will be lost to this particular community." They must be careful not to kill th goose that laid the golden egg. But whilst thus championing the production of smoke in steel-making, h admitted the lack of necessity for smoke from boiler furnaces and household fires, and urged that it was th furnaces and the household fires pouring out their gase which were really injurious to health, of which the anti-smoke people took no notice whatever. One of thes gases was carbon dioxide, one of the most deadly o poisonous gases, and another was sulphur dioxide, whicl affected the throat very much. These gases were invisible and though very injurious were contemptuously ignore by the smoke inspectors; yet they probably injured th health of the community far more than the particles o carbon upon which their eyes were so thrown in thei inspections.



SUGGESTION FOR REBUILDING ST. GEORGE'S HOSPITAL.—By Mr. Mark H. Judge.

HYDE PARK CORNER AND ST. GEORGE'S HOSPITAL.

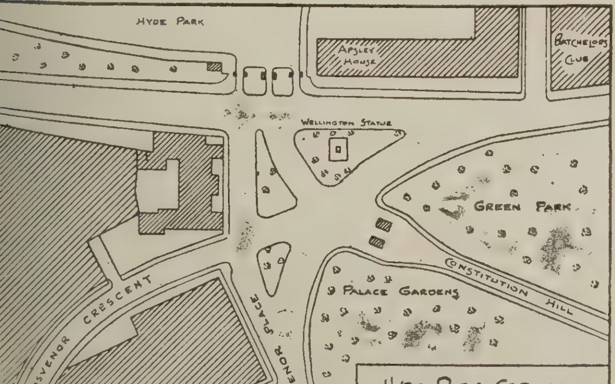
By Mark H. Judge.

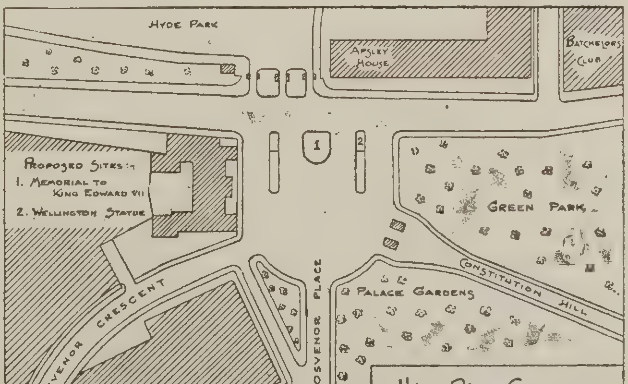
THE favourable reception given to my proposal to remove St. George's Hospital from its present exremely valuable, but, for the purposes of a hospital, nost unsuitable site, to some quieter spot in near proxinity to Hyde Park Corner has led me to give further onsideration to the proposal. The open spaces at Hyde Park Corner, the Strand, and Piccadilly Circus are erhaps the worst examples of bad planning we have n the Metropolis. No place in London is more capable f successful treatment than Hyde Park Corner, with Decimus Burton's noble entrances to the two parks, he Wellington statue, Apsley House and other dignified uildings adjoining. How chaotic the present planning s and what might be made of it by a bold and dignified cheme is shown in the two accompanying diagram plans, 1) as at present, and (2) as designed by Professor S. D. dshead in connection with his proposal for the King Edward Memorial. Whether the memorial will be placed on this site or not, all must hope that some such ordered design as Professor Adshead's may be adopted for this important open space.

The realisation of so great an improvement would not be complete without the removal of St. George's Hospital and the erection of some great public building in its place.

St. George's Hospital was instituted in 1733 in what was then Lanesborough House. The present building was erected in 1827-1834 and added to in 1879. It is one of the largest institutions in the Metropolis, and the total number of beds available in 1910 was 334, in which year there were 4,844 patients admitted, 679 being children under twelve years of age. The number of new out-patients seen last year was 48,583. Attached to the hospital is an important Medical School, with laboratories and museum, where an immense amount of pathological and bacteriological work has been carried out, and the school has thus afforded medical students a first-class training.

The hospital as now situated, surrounded by noisy thoroughfares, is certainly out of place. Piccadilly is





the main west London road, and all day, and all night, a constant stream of traffic is passing, as also on the route to Victoria Station, while motor omnibuses have their stopping-places alongside the very hospital doors. It is doubtless very desirable for a hospital such as this to be situated near the great parks, but the advantages thus gained must be greatly nullified by the noise and dust of a great London thoroughfare like Piccadilly. Last year 1,671 cases of major operation and 131 cases of minor operation were performed in the hospital, while in the out-patients' department there were 1,244 cases of operation. Such cases should be treated away from dust and noise. Here both the suffering patients and the hard-worked nurses must find the noise of the constant traffic very trying.

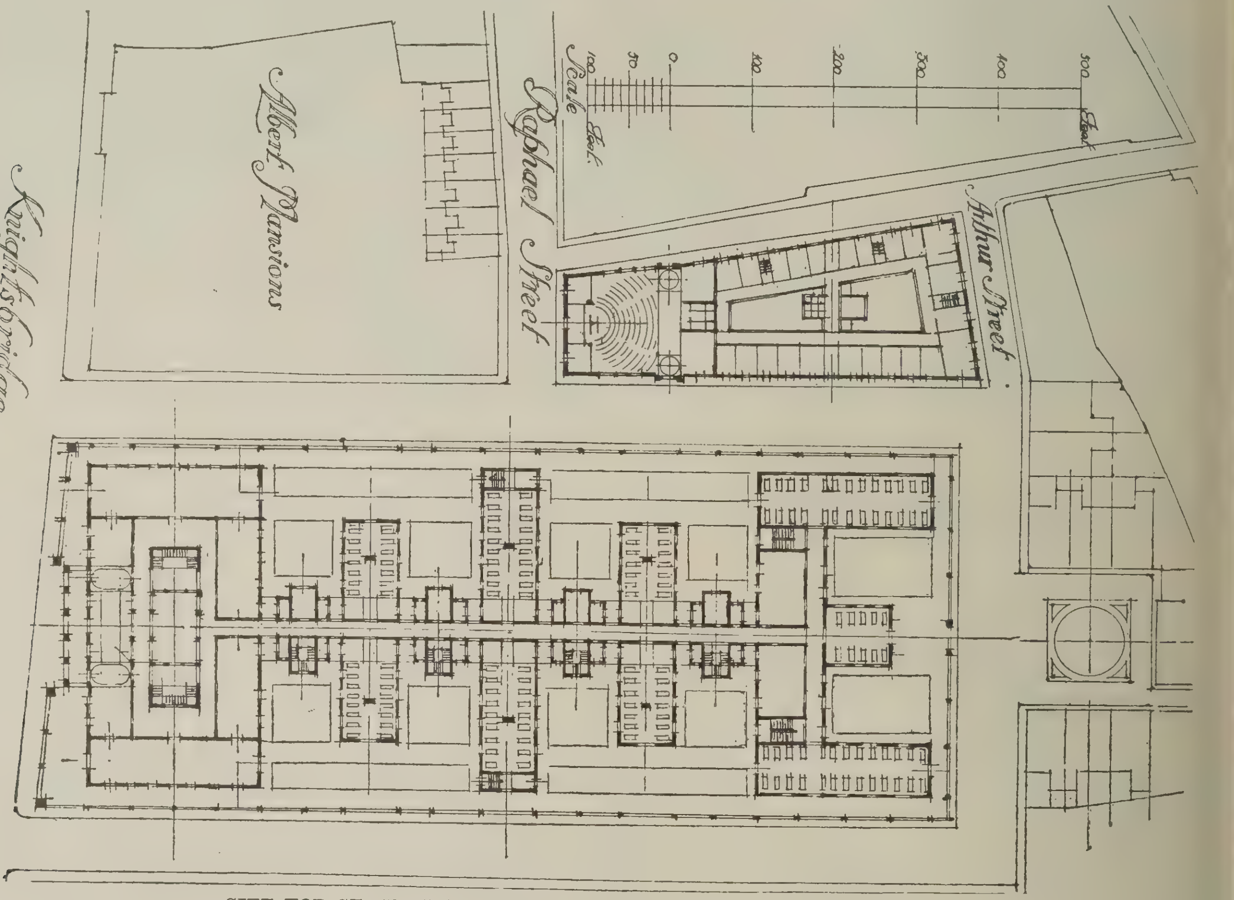
As evidence that the hospital is not well placed I may quote the following from Sir Henry Burdett's work on Hospitals: "St. George's Hospital occupies one of the finest public sites in London. It is believed, however, that the finances of the institution suffer from this circumstance, because many wealthy people who so frequently pass it during the season, instead of being attracted to its support, console themselves with the reflection that a hospital so well placed, and so constantly before the public eye, must necessarily have more money than it knows what to do with. We mention this fact as a gentle hint to those immediately concerned, and by way of consolation to the managers of other hospitals, situated in poor neighbourhoods which are seldom or never seen by the wealthy."

That the hospital should be removed from its present situation must be almost the universal opinion, but the difficulty has been to find a suitable site within the radius the hospital now serves. An appropriate site now offers itself on the Trevor Estate, on which not only are the old buildings to make way for new ones, but new road planning is proposed. Trevor Square is in such close proximity to Hyde Park Corner that it is almost an ideal site for the district hospital, easy of access and yet sufficiently away from the busy thoroughfares to give that quiet which is so desirable for an institution of the kind.

The accompanying plan and perspective drawing are not put forward as proposals to be carried out either as regards arrangement or elevation, but they will give some indication of what might be done with the site. The administrative block would be next the Knightsbridge Road, and every other part of the building would be surrounded by quiet roads with no through traffic, while the gardens would afford the much needed opportunity for open-air exercise and treatment.

The accommodation of the present hospital is, on the ground floor, 7 wards with 89 beds; on the first floor, 11 wards with 135 beds; on the second and third floors, 127 beds, making a total of 351 beds.

The accompanying ground floor plan of the proposed hospital at Trevor Square shows 9 wards with 146 beds, so that with only three floors a total of 438 beds could be provided. The perspective shows three floors above the ground floor, and a lower ground floor in the Brompton Road half of the building.



SITE FOR ST. GEORGE'S HOSPITAL.—Suggested by Mr. MARK H. JUDGE.

The total area of the site of the present hospital is 67,192 square feet, and that of the proposed new hospital building is 126,000 square feet, including the gardens shown. Parts of the estate not required for the hospital building might with great advantage be devoted to a Medical School, Nurses' Home, Residence for Doctors, and other appurtenances necessary to a well-equipped institution. The site therefore affords a splendid opportunity for a comprehensive scheme, with detached buildings for those departments which are better distinct from the building in which patients are received. The situation being so desirable, the institution might well have wards for paying patients.

The scheme is, of course, only suggestive of what might be done. If something like what is proposed is feasible, it would seem that a case has been made out which is worthy of consideration by the authorities of the hospital before the land is acquired for other purposes, which before long must be the case, seeing that building sites in so central a position cannot remain in the market for any lengthened period.

The Knightsbridge Road is now practically a continuation of Piccadilly, with Hyde Park instead of the Green Park as one of its boundaries. Property in the whole district has developed at a great rate during the last few years: this development will be even greater in the near future, and it will become more and more difficult to get land for building within a mile of Hyde Park Corner, except at a price which would be prohibitive for such an institution as St. George's Hospital. Such an opportunity as is afforded by the falling in of the leases on the Trevor Estate is one that cannot occur again, and in the interests alike of a great charity, and of a great public improvement, advantage should be taken of the opportunity before it has passed away.

ROYAL ARCHÆOLOGICAL INSTITUTE.

(Concluded from last week.)

AFTER luncheon the members reassembled in the Jerusalem Chamber. The first contribution was a short paper by Professor W. R. Lethaby, F.S.A., on

The Confessor's Shrine.

The shrine, he said, consisted of a gable-roofed coffin covered with plates, arcades, and figures, all of gold set with precious stones. Similar shrines of about the same date are at Tournai and Rouen. Mathew Paris records, under the year 1241, that Henry III. caused a shrine of pure gold and precious stones to be made. Probably it was begun at this time; but it was not completed for full thirty years. When it was begun the King's favourite man of affairs was Odo the goldsmith, and his son Edward continued in his place. Two documents regarding Odo are among the muniments of the Abbey. One shows that in 1241 he lived in a big way at Westminster, and received a grant of a free chantry in his private chapel. The other shows that at one time he was Provost of Westminster. Edward, the son, called "of Westminster," is also named Goldsmith in another of the documents. As we learn from other sources that he was keeper of the shrine from the time of its commencement, we may consider it certain that the shrine was the work of the goldsmiths Odo and Edward of Westminster. In the Cambridge "Life of the Confessor" there are pictures representing scenes at the Confessor's shrine. Whether it represents Henry III.'s new work is not quite certain.

The marble and mosaic basement, of Italian Cosmati work, on which the golden coffin rested still remains. It is one of a number of examples of the art of the Roman mosaic worker in the church, and which form a group which has no competitor this side of the Alps, and must be one of the most remarkable in the world. An inscription on the Presbytery pavement shows that it was laid down in 1268 by Odericus, from Rome. A similar inscription on the shrine basement records that it was the work of Peter, citizen of Rome, in 1279. Now it was long on record that the tomb of Pope Clement IV., at Viterbo (died 1268), was the work of Petrus Odericus An inscription to that effect was noted by a writer in 1685. A local guide to Viterbo published in 1894 states that the Pope's tomb was by the same artist who xecuted the tombs of the kings in the famous Abbey of Westminster. This view, which has been adopted by later authorities, seems in the main a correct one. The facts would appear to be that Oderic and his sons were the most famous mosaic workers in Rome, and that Henry III. attracted the father to Westminster. The Pope died in the year when the Presbytery pavement was finished by Oderic. His son, Pietro Oderisi, made the papal tomb; possibly he ad been with his father and was called back to Rome. Later, when the Pope's tomb was done, Peter came to Westminster o execute the basement of the Confessor's shrine, which was inished in 1279.

Mr. Frotheringham, in his "Monuments of Christian Rome," gives this account of the author of Clement IV.'s tomb:—"A leader of the Roman school, Peter, son of Oderi- us, made the first attempt to introduce both sculpture and mosaic decoration in sepulchral art in his tomb of Clement IV., at Viterbo, in 1268. If there were any earlier xamples of this type they have perished. He also for the rst time substituted for the antique architrave and classical rders the Gothic trefoil arch and foliated capitals. It was uite a revolution." The Westminster shrine basement has trefoil arches, and the inquiry suggests itself: Did the revolution in the Roman marble-workers' style originate in consequence of their contact with Westminster? A close comparison between the shrine base at Westminster and photographs of the tomb at Viterbo shows sufficient resemblance to justify one saying that they are by the same hand. One of the arched compartments at Westminster is filled in a singular way by circles at top and bottom connected by vertical strips; the same awkward arch-filling is found at Viterbo. Then, again, we find one of the columns inlaid with an inverted chevron pattern of large scale; the same pattern appears on the soffite of one of the niche-heads at Westminster. On the tomb of Henry III., which was certainly wrought by the same master who did the shrine-base, there are large crosses on a plain field in the two recesses; there are similar crosses at the end of the Pope's tomb. It may, in fact, be accepted as proved that the shrine-base and Henry III.'s tomb are the work of Peter, son of Oderic, who made the tomb of Clement IV. at Viterbo and another tomb in the same church.

A fragment of the architrave of the basement exists which can only have found a place at the west end, over the shrine altar; it evidently projected about six or seven inches at each end of the west front. On comparing the record of the whole of the inscription with that now apparent on the east front it is found that space for five or six letters was required at the west end beyond the number at the east. Such projections would give that space. These projections must have been carried by special columns, which also shielded the base ends of the reredos slab. Four years ago there was found among the fragments stacked in the triforium two pieces of little plain spiral columns of Purbeck marble with a line of gilding up the recesses of the spiral. Apparently these were the marble columns placed round the shrine in the same manner as the twisted columns of similar size and shape round the shrine of St. Albans. These must have been fragments of three marble columns placed at the Confessor's tomb—apparently to support lights—in 1289, at a cost of 46*s.* 8*d.*

Mr. H. St. John Hope remarked that Professor Lethaby had made good his points in every particular. The paper was intensely interesting, because it was always instructive to know who had made the wonderful early works. Furthermore, the paper showed that although such a tremendous lot had been written about Westminster Abbey, there is still a mighty lot to find out by means of patience and the comparative method. Each generation ought to contribute the quota, and they might be sure that Professor Lethaby, himself, and others would do their best.

Sir Henry Howorth said it was exceedingly interesting to find the twisted columns at the Confessor's shrine so soon after they had been introduced into Rome. In one of the churches at Naples there were to be seen pieces of furniture with gilding in the recesses; but the date was very much later. At Westminster there was a splendid example of mosaic pavement. When he was last at St. Mark's, Venice, the old man who was engaged on restoration of the pavement there had told him of the great difficulty in getting glass cubes to match the old work, and that he was using cubes from pieces that had been broken up. He thought it consoling to know how careful they were in Italy now in these matters.

The second contribution came from Mr. Edward S. Prior, F.S.A., F.R.I.B.A., who took for the subject of his remarks

The London Style.

The mediæval monuments of the Abbey, he said, had certain characteristics and methods of sculpture which he had called Westminster Style. But the King's masons and craftsmen engaged on the Abbey appear to have had their shops in the City, and many of them were described in the records as citizens of London. The proposition he wanted to lay down was that London in the Middle Ages was the mart of English art, and that at the background of all provincial styles there was the style of London, its workmanship, and its art.

London influence on style was not exercised till after the twelfth century. It became strong in Henry III.'s reign—particularly with regard to sculpture. In effect this was the spread of a shop style over architectural or builders' styles. The London method of doing things made sculpture a shop speciality, and the reasons for its dissemination were obvious. The political position of London as the usual residence of the Sovereign and the place where Parliament met was one. Mediæval art was peculiarly ecclesiastical, and concerned most largely with the building of churches and with the monuments put into them. The bishops and other clerics at the head of affairs had to come constantly to London; they knew London style and ordered their monuments there, and the works were sent away to the various cathedrals and abbey churches. But London, too, would be more directly in connection with Continental art, for in the metropolis lived the nobles and heads of estates who had affairs abroad, and consequently fell under the fashions and influences of the Continent.

And there were peculiar conditions, in that London lies in a basin of clay; consequently she never possessed a sculpture craft exercised in the working of local stone. It was not as was the case with Durham, Wells, Exeter, or Lichfield. London had to introduce its stones in order to build. Much came from Reigate, Caen, and the north countries. We have evidence in Westminster Abbey itself of the employment of a great number of stones, particularly the use of mixed materials in the monuments. The beds of Reigate stone were not high enough for the purpose of effigy-making. For the monuments made in London, blocks of marble, alabaster, and clunch were specially imported; also wood and bronze were used. The London producer of sculpture, in fact, exercised himself in all varieties of material.

Since London had no masons of its own, because it had no quarries, its stoneworkers came from the outside. There are in the Abbey accounts constant references to masons from the country. At the end of the thirteenth century they seem to have been drawn chiefly from the county of Kent; eighty years later there was a run on Gloucester masons. But what happened in these cases was that directly the mason came into London he got in touch with workshop art, and developed in quite a different way from what he would have done had he remained in his native place. And when he returned there afterwards he took back with him the London style. And so it was spread broadcast. Also, from the works of the London shops around the country, provincial masons took up their ideas of art.

The first London production of monumental effigies developed the Purbeck marble style. The use came in the ordinary practice of building from Purbeck itself. But the early figures seen at Peterborough owe their distinction to the fact that London was developing this workshop art. There came a time when it was realised in London that it was just as easy to import and carve Caen stone for figures as Purbeck marble. Immediately we find these stone figures forming the basis of the English style all over England. The stone was capable of being carved in much more lively fashion than the Purbeck marble had been. Accordingly we have lively figures of knights drawing their swords, worked in the local stones in imitation of the London production. Besides these two materials there were others. Effigies of wood, with a surface of gesso and engraved brasses, were particularly London methods of memorials, and were the basis of local imitations.

The monuments in the sanctuary of the Abbey were peculiarly Westminster monuments, and they were not only copied elsewhere, but served as the foundation of the English style. One marked feature in the figures of these tombs was the new habit in the treatment of the drapery, the old architectural way passing into the natural way. The tomb of Aveline, Countess of Lancaster, in the sanctuary, shows a distinct step forward. The canopies and gables of these tombs are to be seen in a great many places in England. There can be little or no doubt that it was at Westminster they were first evolved. Again, the attitude of the effigies on the tombs of Crouchback and de Valence are new departures. The Westminster carvers represented their knights lying in a more or less negligent way, and with their hands clasped in prayer instead of drawing a sword. This Westminster method shortly grew to be a universal habit in this country. Abroad the knight had always been sculptured with folded hands. Again, the Westminster use of alabaster begins the use of that material in English monuments. The alabaster figure of John of Eltham (died in 1337) is, in its sculpture, from the same hand as that of Edward II. at Gloucester. In both cases these monuments are composed of the three materials so typical of the Westminster style—viz., alabaster, marble, and Caen stone. But the effigy of John of Eltham is just like the stone figures to be found at Rochester and elsewhere close to London which we must suppose were carved in London. It is the same with the earliest alabaster effigies of bishops; they were evidently carved in London. Then, the making of the London monuments became the model for the local productions, all of alabaster, at Chellaston and Nottingham. In the same way, later, the carvers of Henry VII.'s Chapel have left another work of theirs, or a close copy of their style, in the great tomb at Paignton, in Devon. Illustrations of the close connection of English sculpture with London models might be multiplied indefinitely.

The meeting terminated with a cordial vote of thanks being passed on the motion of Sir Henry Howorth to Mr. G. D. Hardinge-Tyler, the secretary, for all the trouble he had taken in the arrangements.

ENGLISH MEDIÆVAL ARCHITECTURE.—III.

MR. PRIOR in his previous lecture having dealt with the 450 years of uncreative Saxon style which preceded the Conquest, in his third lecture treated of the half century immediately subsequent to that event. This he considered one of the most astonishing periods of creative style which the world has seen, for in some fifty years all the principles of Gothic architecture were established. The Norman absorption of Britain meant the coming from Normandy of the "great church" in contradistinction to the preceding "small church." The chief character of this abbey church plan was to be seen in its development from the Roman or aisled basilicas, by its expanding eastward into a great hall whose centre was lighted by a lofty lantern—developed from the ambitions of the domed basilicas of Byzantium. In England its importation immediately aroused a specially creative experiment. The Benedictine ascendency ruled church building here for many years, and the architecture of the great Anglo-Norman Romanesque ought indeed to be called "Benedictine" rather than English. The Conqueror set the Benedictine houses as garrisons in a conquered country, the established masters of all around, and the power and wealth of the monks was expressed in the building of great abbey churches. For three centuries the "great church" plan of the abbey ruled the creation of English style. As compared with the "cathedral" plan of the Continent this English type may be called "monastic." The largest of our cathedrals were Benedictine churches as well as bishops' seats. Abroad, on the other hand, the cathedral appears as a rival to the monastic church. So the Benedictines set a model of magnificence, the memory of which had a constant effect on the ideal of the English great church.

Durham keeps better than other cathedrals its Anglo-Norman effect, with the most essential features of the English development. The first peculiarity of English churches lies in the great length of the church body and in the large number of bays by which the basilica prototype was extended. The great projection of the English transepts is another peculiarity, likewise the development of the imposing western façade with a broad hall—though this latter is traceable to Saxon habit. The English lantern tower was carried up with a characteristic and unique squareness, bulk, and height above the crossing. A final development lay in the eastward extension of English plans according to two types—viz. that of the "parallel apses" and the peri-apsidal. The first was that of the single high apse at the end of the choir, this apse being set against a square-gabled ending, the wings of which externally masked the apses of two parallel aisles. In the peri-apsidal ending the aisles instead of being stopped by apses are carried round the circle of the high apse, making a passage from which generally three apsidal chapels project tangentially. This type is stated to have been first used in St. Martin's, Tours, built c. 1000, and is thought to have been devised to afford a separate and convenient passage for pilgrims round the shrine of St. Martin which was placed on the apse floor. The best English remaining example is Norwich. The use of both these plans in English churches took them out of the Saxon stage.

The foreign plans of "great churches" have, as well as main apses, the transepts with apsidal chapels, sometimes to the north and south, but generally projecting to the east. These apses in the transept were common in some of the early English examples; but in others, as early as at Durham, the transept chapels are ended square to the east and take, in fact, the form of an aisle. Not only chapels but the whole ending of the English cathedral tended to be square, as at Winchester and probably at Chichester. Another point in the planning of the great monastic church as Anglo-Norman building received it was that whereas Saxon churches were aisled simply on one floor, the new church had a triforium passage which the Benedictines carried round the transept ends and also round the apse at the east end, so that it was continuous for the whole length of the church. In Anglo-Norman architecture, except in one group of the great abbey churches of Western England, this continuous second storey was a well-developed feature, and lasted as a long tradition. Its arched openings into the central nave made the bay take its three divisions. These three storeys were the distinguishing order of monastic architecture, and their presence in English style shows the mark set by the Benedictine architecture of the great Norman abbey.

The ecclesiastical dictation of the Conqueror's dominating prelates lay in the vast ground plan; the magnificence and order of the Benedictine rule gave the scheme its impressive massiveness. Next the builders took up the story and made

Anglo-Norman style out of the expediency of their crafts by a series of revolutions. The first post-Conquest building imported both workmen and style. But in the subsequent vast enterprises the English population was pressed into service. Later came the third Anglo-Norman stage, when the growing skill of the workman transformed the new character introduced by his predecessors by making the mason a free agent in construction.

The great fortresses of the Normans generally ante-dated their abbey buildings in England and influenced them. But the constructive methods of the two were not essentially different. The "ingeniator," or military engineer, was also a mason equally skilled in the building of castles, churches, and bridges. In the halls or chapels at Durham Castle and the Tower of London we see the unalloyed work of Norman masons. Their feudal lords wanted strongholds at once, and so brought over the actual masons or engineers who were building in Normandy.

But the magnitude of the ecclesiastical erections c. 1100 needed an army of builders. Not only were the plans vast in their setting out, but the masses were hugely constructed. The rubble core was faced with squared coarse ashlar left rough from the pick and the axe with thick mortar joints. The surface was overlaid by a thin plaster, and on this internally came a painting of figure-subjects which were set in great panels of broad colour with borders of Byzantine and Carlovingian decoration. For the outside face, it is believed, a stucco was usually applied and all the walls were whitewashed. The figure decoration was not necessarily a Norman importation, for in the great Saxon monasteries the productions of the native school of manuscript painting take the first place among the arts of West Europe. Accordingly the broad flat surfaces of Anglo-Norman style, though now naked, rough, and formless, were in their day likely to have displayed the most finished painting art of Europe.

English construction, however, did not long continue unskilful. Native slave labour ceased in the times immediately following the Conquest. Continually building in the service of the monasteries the Englishmen often became lay brethren, if not admitted monks, and shared in the same religious aspirations. At Norwich and Durham c. 1100 the considerable bodies of masons were skilled in stone-dressing and had acquired the secrets of stone-construction. No restrictions of chisel-work appear—on the contrary the surfaces of elaborate dressing begin to multiply. Moreover, the theory of construction took enormous strides, and there began that course of constructive experiment which was to continue throughout the whole English mediæval period. It was to fine away almost to nothing the mass of walling, transforming the whole function of material, replacing the concreted amalgam of Roman style by the Gothic webs of fitted fibrous cohesion that followed on the advance of the mason in chisel-work.

The prominent necessity of mediæval building that had most to do in producing this wonderful transformation was the vault. In the Anglo-Norman abbey and cathedral churches the builders may be credited with the intention of vaulting them, though the expression of vaulting lay more in the faith of the religious founders than in the knowledge of the building mechanic. But in the building of Durham choir in 1093 vague aspirations were replaced by definite ideas, and the builders who carried it out about 1104 were among the earliest in Europe to work out and achieve that system of ribbed vaults with intersecting ribs which is taken as the mainspring of Gothic construction. Here they discovered how a stone roof could be lighted at the side. Their new method did more than provide a window-lighted stone-ceiled hall, it established a principle of building which consists in the concentration of thrusts. So that, instead of the solid ceiling resting uniformly on the body of the wall, as in Roman groins, dome construction and barrel vaulting, the pressures and stresses were directed on a point where it could be met by an abutting or flying arch to a point outside the area of the building. Thus the interior of the building was relieved of the necessity of encumbering its area and providing continuous support to its ceiling, that support being arranged outside. Now this was making a new principle in building; it was giving masonry a coherent and artistic fibre in place of its being an inert conglomerate.

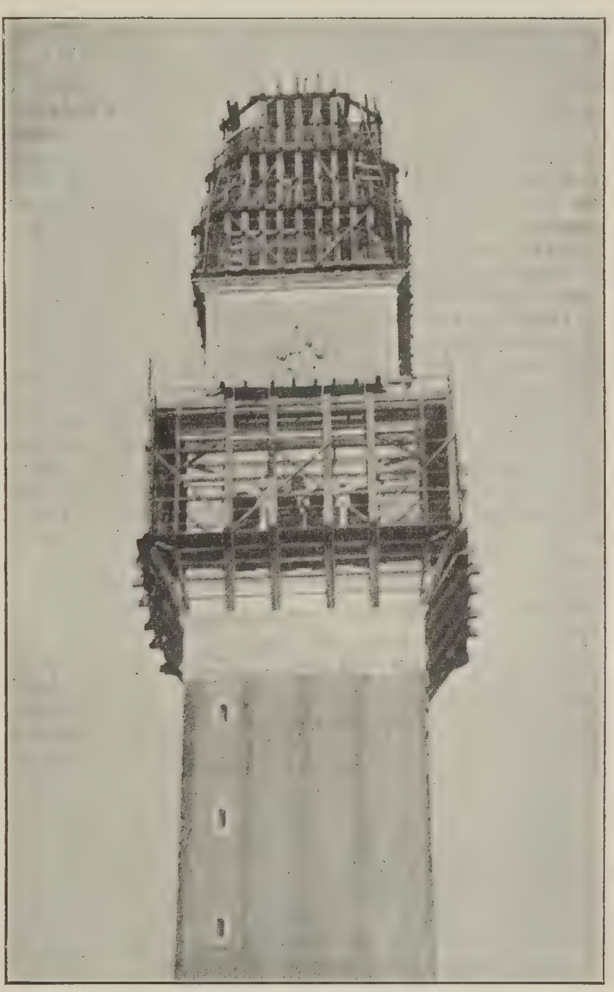
The carriage of large stone was a great difficulty in mediæval building. It was therefore impossible to make the arch or jamb in a Norman wall, say 10 feet thick, of a single stone. The Romanesque arches were contrived for the use of stones of small scantling (say a foot wide and high) by the expedient of building a series of inner arches. Any number of rings could be put, and so any thickness of wall compassed with the use of little material. This recessed construction of arches was a method pregnant all through mediæval architecture, shaping doors, windows and arcades in a constant succession of forms.

ST. MARK'S TOWER, VENICE.

By Robert Williams, F.R.I.B.A.

Some nine years ago I journeyed from Egypt on my way home to view the ruins of the noble tower of St. Mark's. Only the stump from 10 to 12 feet high, surrounded with the débris of mortar and broken brick and stone, remained. The authorities had put a strong close-boarded hoarding around all. Inside, the workmen were carefully gathering together and sorting out the moulded stonework and unbroken bricks. The broken marble work and sculptured panels of Sansovino's beautiful loggia had been already reverently collected and carried into a court of the ducal palace just across the square.

Can anyone feel real sorrow on viewing the destruction of a work—a work by human hands? One may think so. The great square, with its mighty watch-tower at the corner nearest the sea, seemed empty. The great new hoarding with signs of débris at its outer margin looked like the hedging in of the new grave of one even mightier than Cyclops—a proud sea-mark struck under, never to rise.



ST. MARK'S TOWER, VENICE.—OCTOBER 1911.

Thoughts of the spirit of Ruskin for the moment chased other thoughts away. It was one of his "noble towers." What would he say were he to see the great tower thus prostrate? He, Ruskin, had compared St. Mark's Tower in a special plate in the first volume of the "Stones of Venice" with a "British" tower, much to the discredit of the latter, although in a later work, "Modern Painters," Ruskin says in a note that the "college tower (Edinburgh, finished in 1850) is not kindly represented." He might have confessed, also, that it was hardly fair to compare a British tower 121 feet high with an Italian campanile some 350 feet high. But the lessons in towers in his chapter on "Superimposition" in the "Stones" are nevertheless good. "There must be no light-headedness in your noble tower," he writes; "impregnable foundation, wrathful crest, with vizor down, and the dark vigilance seen through the clefts of it; not the filigree crown or embroidered cap. No towers are so grand as the square-browed ones, with massy cornices and rent battlements." Thus generally on towers, and of St. Mark's specially, he wrote in his diary: "I think the campanile of St. Mark's is the most perfect instance of the power of proportion that can be given."

Thinking on these words, fair and true as they were, I turned away with a feeling of sadness. The lantern, with its emblematic figures of the Venetian Republic and of Justice; the bells, which had tolled warnings out to sea; the golden angel fitly crowning the steeple and the massive shaft, all—all of this goodly tower of noble proportions had fallen prostrate to the ground. The Queen of the Adriatic had lost her highest pinnacle; the book of the world's art had lost an invaluable page. What was to be done—nothing but go and sit among the heedless blue pigeons in the piazza and sip coffee!

Later I saw a manufacturer and dealer in those works of glass and mosaic for which Venice is still famous.

"What will the city do? Rebuild?"

"There's talk of it, but the money had far better be spent on other works more needed in the city."

Nevertheless it was wisely decided to rebuild. In due course new, wider and deeper foundations were begun, and in about two years I had the pleasure of viewing the foundations, then partly above ground, built in strong, massive, carefully dressed Istrian limestone, set on concrete packed on to deep-driven piles. A small nucleus of the old concrete was left in the centre. There was no hurry, no American hustling—the architects built with care and love. The base of the old tower had stood the test of a thousand years, and they desired, at least, a like period for the life of the new tower. So the work went on for years.

Again my sail set for fair Venice. It was dusk when I approached a week ago, and looming up before me as the gondolier plied his oar towards the mouth of the Grand Canal I could see the head of the splendid tower reared on high once more, enveloped in the bandages of a bracketted scaffold, the body having been stripped of scaffolding some time before. There was the tower, as before, only stronger and better and endowed with a new and longer lease of life. It was a glorious treat to be allowed to accompany the superintendent up the inclined way to the lantern balcony and to see as we ascended how lovingly and well the architects had done their rebuilding. And here I felt that Ruskin's words were, once more, true of the tower: "It is built as simply as it well can be to answer its purpose: no buttresses; no external features whatever. . . One bold square mass of brickwork, double walls, with an ascending inclined plane between them, with apertures as small as possible, and these only in necessary places, giving just the light required for ascending the stair or slope, not a ray more." An exact description of the new tower.

I might add that Sansovino's beautiful loggia, at the base of the tower, is also approaching completion. This, too, is as beautiful as ever.

All architects will, I am sure, be glad to know of the near completion of this fine tower, and I am sure they will rejoice with me that the architects and the local council with whom they worked have carried out their task with so much love, care, and artistic taste.

OUR CONTEMPORARIES FROM OVERSEAS.

THE *American Architect* (New York) has issued two special numbers on hospitals, which contain valuable information on the most modern practice both in the United States and, for comparison, on the Continent of Europe.

Arkitektur og Dekorativ Kunst (Christiania) illustrates the monument to Rikard Nordraak, which is remarkable for the peculiar—we might almost say eccentric—character of the enclosing iron fencing. The exhibition buildings for 1914 are illustrated from photographs of a model. An illustrated article on English garden cities also appears.

Construction (Toronto) illustrates the new premises of the Standard Bank, Toronto, by Messrs. Darling & Pearson, and the Mason & Risch Company's new premises also in Toronto, a show house for the display of piano and other musical accessories. A bungalow in North Toronto, by Messrs. Curry & Sparling, is a curious but effective design carried out in boulder stones.

La Construction Moderne (Paris) illustrates a new church at Rouvres (Seine-et-Marne), a weird design by Mons. Julien Barbier, and a prize design by Mons. Camuzat in this year's Concours Chaudesaignes at the Académie des Beaux-Arts.

Deutsche Bauzeitung (Berlin) continues its illustrated descriptions of the new Stadthaus at Berlin, the new theatre at Freiburg in Breisgau, and the new prison at Mannheim. A scheme for the improvement of the central area of the city of Louvain, by Dr. Josef Stübben, is also described and illustrated.

Het Huis (Amsterdam) has an interesting illustrated article on Old Gouda, an account of the restoration of the church at Loon op Zand, and plans of the new Royal Sanatorium at Groesbeek.

Stone (New York) illustrates the Eighth Church of Christ Scientist, Chicago, the new wing of the Metropolitan Museum of Arts, New York, and the Geographical Society Building, New York. The collapsed concrete dam at Austin, Pa., is a fine object-lesson for our contemporary, and is supplemented by other telling examples.

Engineering Record (New York) gives a full description and views of the destruction of the Austin Dam, with an explanation of the probable causes of the catastrophe.

THE INSTITUTE OF CIVIL ENGINEERS.

THE Council of the Institution of Civil Engineers have made the following awards in respect of papers published in Section II. of the proceedings for the session 1910-1911:—*Telford Premiums* to Messrs. S. M. Dixon, M.A., B.A.I. (Birmingham), H. J. F. Gourley, B.Eng. (London), J. Holden (London), A. Rogers (Horsell), A. E. Griffin (Hong Kong), F. C. Lea, D.Sc. (Birmingham); and a *Crampton Prize* to Professor W. E. Dalby, M.A., B.Sc. (London).

They have also awarded the *Indian Premium* for 1911 to C. E. Capito (Ahwaz, Persia), and the *Webb Prize* to F. W. Bach (London).

ILLUSTRATIONS.

"NATIVITY" WINDOW IN ST. ANN'S, MANCHESTER.

THIS window was designed by Mr. Arthur A. Orr, and was carried out by Mr. Rueben Bennett, Manchester. The subject is the Nativity of Our Lord: the Infant Jesus surrounded by adoring Shepherds.

WINDOWS DESIGNED BY MR. ARTHUR A. ORR.

THESE two windows were designed to the memory of a child. They represent "Christ blessing little children" and "The Good Shepherd." Angel figures representing "Gentleness," "Purity," &c., take the place of ornamental canopies. These designs were exhibited in this year's Academy by Mr. Arthur A. Orr.

STAPLEFIELD PLACE, SUSSEX.

THIS house, which has been completed this year for Mr. Henry Denny, occupies an elevated site adjoining one of the old Sussex commons, which is skirted by a former coach road from London to Brighton. As the garden and grounds were occupied by a mid-Victorian building, now removed, the new house stands among well-grown trees and matured lawns, and by the use of old Sussex tiles and stone the effect of newness is still further removed. The endeavour of the architects (Messrs. Clayton & Black, of Brighton) has been to reproduce the simplicity and quiet charm of the seventeenth-century manor house, of which so many examples may be found in the county. The builders (Messrs. Norman & Burt, of Burgess Hill) have well seconded their purpose. Among other contractors employed were Messrs. Henry Hope & Sons, for casements and glass; George Jennings, Ltd., for the sanitary fittings; and Phillip & Son, of Westminster, for heating appliances.

PREMIATED COMPETITION DESIGN FOR SCHOOLS, WALLSEND-ON-TYNE.

THE design we illustrate this week was submitted in competition by Mr. Edward Cratney, and was awarded the second premium.

THE ARCHITECTURAL ASSOCIATION.

AN ordinary general meeting of the Architectural Association was held at Tufton Street, S.W., on Monday, ctober 30, Mr. Gerald Horsley, F.R.I.B.A., President, in he chair.

It was announced that the annual conversazione will take lace on November 23, at 8 P.M., and that the Athletic Club ance will be held in the Wharncliffe Rooms on December 8. r. E. N. Walker and Mr. R. C. Horsley were elected embers, and Mr. F. C. Eden was elected a member of the ouncil.

Mr. H. H. Hill, B.A., then read the following paper on

he Architectural Association Excursion to the Loire, 1911.

Mr. President and Gentlemen,—As there are many minds, are the points of view numerous from which the arts may studied and enjoyed. And I think in no art are people's leas of what is or is not to be admired so varied and so pricious as in our own art of architecture. To some a autiful building only means one very much enriched in its tails, exquisitely finished, and lavishly bedecked with rving and ornamentation. Others imagine that they have a eat taste for architecture, because they love to visit old ildings and try to conjure up visions of the personages and ppenings that history associates with their walls. In both ese classes professional architects are rare. There are some nong us, however, who have a curious knack of never regardg a building that is much more than a hundred years old real, living architecture. Rather, they treat it merely as example, more or less important, of architectural development, an illustration to the history book. And they are far ore concerned about the dates of its erection, the state and anner of its restoration, than they are about the æsthetic alities of its design. But this point of view is now oldshioned, and is only a belated and extreme phase of the eat and valuable movement towards the scientific study of chitectural history for which the last century is remarkle. For the majority of us nowadays I am sure I am right saying that our chief interest in all buildings alike, ether new or old, lies in their actual appearance, whether e result of time and alteration or of pure design.

Personally, I think it a good thing when one is looking at d work to consider it, for a while, at least, as design only; study how certain means have brought about certain effects, d the æsthetic value of these effects, detaching altogether r the moment the various historical circumstances that have d their share in determining the form of the architecture. course, from this point of view alone one could not make omplete study of any particular building. But we really e not often concerned in the making of such studies. We, modern designers of buildings, go out to see the work done our ancestors. We are not so much interested in our cestors as we are in their architecture.

So this evening, since time did not permit us completely study any of the buildings that we saw in the Loire Valley st August, nor will it now allow me fully to analyse them, want to do my best to describe to you the architectural pressions that I then received. These, I fear, being no re than the impressions of a first visit, will have little value serious criticism. I hope they will have this merit, at all ents—that they will evoke the expression of riper judgnts than my own.

The chief aim of the excursion this year was to visit the rly Renaissance châteaux, the work of the School of Tours, ich are so plentifully scattered about the Loire country, m Orleans downwards. There was also a considerable ount of interesting church work to be seen. Yet it seems me that in Touraine we were in a kind of ecclesiastical man's land. To the south of us was the great province Aquitaine, with its distinctive type of Romanesque rch. To the west was Anjou, where the development of lting made its own peculiar progress in the twelfth tury. And to the north-east lay the Ile de France, where rteenth-century Gothic shone with its greatest brilliancy.

In Touraine we were not in the rut of any particular e of work. The most important influence seems to have e from the south. And the further we travelled down river the more we seemed to encounter it, until finally reached Fontevrault, whose domes are hardly less epochking in the history of architecture than of Périgueux elf.

The Abbey of Fontevrault has had its vicissitudes. In 4 it was turned into a prison, and at that time the church s sadly mutilated. Three of the domes, I think, were taken down. Now restoration is in progress, and the almost Classic magnificence of the nave can again be seen. The east end is differently designed. There are no piers, pendentives, or domes. Closely-spaced columns of unusually long proportions are used, and their rising lines, crowned by small arches, have a very vigorous effect. Our only view was the outside of the gateway, an interesting piece of work of the eighteenth century.

The next most important church of the domical type, but a variant of it that is unique, was that within the castle precincts at Loches. Begun in the tenth century, the first bay at the west end of the nave is all that remains of the earliest portion. This is barrel-vaulted, and carries a tower and spire added in the twelfth century. The next two bays carry extremely curious pyramids, octagonal on plan. The internal effect of these is most weird and mysterious. Viollet-le-Duc was enraptured with the romanticism of the whole church. We saw it under the best of conditions, when the brilliant August sun sent the light right up to the apices of the domes. But in dark weather I should think the building must appear to be vaulted in inscrutable darkness, gloomy, and terrifying to an extreme degree.

At Blois the most interesting church is that of St. Nicholas, of which the nave is Early Gothic and the choir twelfth century. Here the influence of Aquitaine and its domes is very slight. There is an attempt at one over the crossing, but evidently the plan was changed, and eight ribs, carrying a vault, spring from the rim of the pendentives, upon which also stands a blind arcade, as though there had been an idea when changing the plan of converting the dome into a lantern. The capitals of the choir are also interesting, and are full of Classic feeling.

Of quite another type is the church at Candes. This dates from the end of the twelfth century to the fourteenth century, and is one of the "hall" type, with the aisles rising to the same height as the nave. The exterior did not strike me as possessing much interest, except for the porch, but the interior is extremely fine and full of dignity. The piers are clustered, rise to a considerable height, and are very well proportioned. The lighting is principally from long lancet lights in the aisle walls, treated in quite a simple manner, but greatly assisting the sense of height in the building.

Among other churches seen on the excursion was a fine Romanesque tower and apse at Langeais, the latter built in the ninth century. The spire was added in the fifteenth century, and the remainder of the church, which is absurdly ugly, within the last forty years. In the parish church at Fontevrault, Angevin influence in the vaulting is strongly marked. There is also a square east end, yet vaulted as though an apse had been intended. Blois Cathedral is a seventeenth-century attempt at Gothic, and, naturally, is rather dull, except for the tower, where the architect returned to his own Renaissance. Tours Cathedral I will not attempt to describe. I barely saw it, and I would very much like to see it again, for there can be no doubt about the magnificence of the west front.

To turn now to the châteaux that we visited—to what, I take it, was the real objective of the excursion—we find that in this class of building there was much more architectural unity than in the churches. One could see also in them the continuous development of the habits and conditions of life through several centuries, and along with it the evolution of the architectural sense. In the beginning the fortress château, built for defence, often rose to the dignity of architecture, because, if not "proportioned unto the rules," it was, at all events, "solid, masculine, and unaffected."

At a later period, when defence ceased to be the first consideration, and architectural magnificence was eagerly sought, the elusive fairy sometimes all but escaped, leaving in her room but a heap of carvers' pranks. Here certainly architecture was "unaffected," and in good work there was evidence of an endeavour to understand the "rules," though it did not always look solid, and often was anything but "masculine." Finally, with the rise of the modern architect, trained in both construction and æsthetics, the four requisites of Inigo Jones could be well fulfilled, as, indeed, we saw them in François Mansart's fine wing at Blois. Henceforth the most vulnerable condition in the quartette was, and is, that architecture should be "unaffected."

In the original mediæval castle at Loches, now a ruin, though in its day one of the most important fortresses in France, at all events, there was no affectation. Nothing could be plainer than the walls of the donjon, relieved only by semi-circular buttresses. Nothing more than solid building was aimed at, and nothing more attained. The interior became a prison, I suppose, when the present château was built, and in it the art of torturing appears to have been brought to an unusually high state of perfection. What is now known as the château was built at the other end of the site by the kings Charles VIII. and Louis XII., that is to say, between the years 1422 and 1515. Picturesquely situated well above the town, the verticality of its fenestration is telling; though from the level of the terrace the unusually heavy string-course becomes almost the most important line in the composition. There was nothing of exceptional interest in the interior, which is no longer inhabited, except the tomb of Agnes Sorel, removed from the church for some reason by order of Louis XVI.

Rising out of the town in the same way as the château of Loches, but with the added advantage of being on the bank of the Loire, is the royal château of Amboise. Here what one sees to-day is but a part of what formerly existed, for Napoleon I., in an evil hour, granted it to one Roger Ducos, who, in order to save himself the trouble and expense of repairs, destroyed a portion of the buildings. What remains is, perhaps, of more interest on account of its fine situation and its exciting and lurid history at the time of the Reformation than as a masterpiece of architecture. In a novel that I read recently an admiring lady described it as looking as though it were carved out of ivory. But such damning praise is totally undeserved. Probably that very spikey row of dormers, which really detracts from the fine proportions of the lower parts of the building, was what evoked the lady's admiration. The tower is interesting. Inside it is a sloping way, up which horses and light vehicles can be brought. It is lighted from above, and the piers around the light well in the centre assist in carrying the inclined vault. The chapel stands isolated from the other buildings, and is an excellent example of what was good in late Gothic. The remains of Leonardo da Vinci lie buried here.

At Chaumont the château is again situated standing high up over the Loire. But it does not rise up out of the town like the other two. From the river it appears part castle, part country house, standing among trees well above the straggling village by the waterside. At closer quarters, however, it becomes much more like the work of the military engineer than of the architect, in our sense of the term. The exterior originally must have been strongly defended. Even now the inserted windows are comparatively few. The entrance to the courtyard is between the towers at the south-east angle, and whether deliberately designed for its effect or not, it is a fine piece of architecture. The coats of arms on either side of the drawbridge—an unusual position—would have been better omitted; but for them, I suppose, the client was to blame. The slots over the entrance to take the arms of the drawbridge are effective features, and we saw a number of them in different places. Originally the building entirely surrounded the courtyard, but in the eighteenth century the north side was taken down, in order, I suppose, to open up the fine view across the river. The increased light and air is probably an advantage to the comfort of the house, which is still inhabited, but the general design naturally suffers from being thus dissevered.

Langeais is another mediæval castle, grim-looking enough from the outside, though restored and inhabited at the present day. The original donjon was built in the tenth century, but practically the whole of the building now standing dates from the fifteenth. In the Middle Ages this château was of great importance, but from the sixteenth century onwards it seems to have passed fairly quiet days. I suppose it was too mediæval to tempt anybody to covet it and fight for it, and too solidly built to suffer much from decay and mutilation. In the year 1840 it was restored, and again about thirty years ago. The work has been most carefully done, and the late owner has gathered together within its walls a most interesting collection of furniture, tapestries, and other domestic accoutrements, mostly work of the fifteenth century. Indeed, both here and at Chaumont the frowning mediæval architecture gains greatly by being continuously inhabited and furnished, if not with the original, at all events with the kind of furniture that it must once have contained. There are also some very good chimneypieces in Langeais, by the way.

Not far from here, and also at the north side of the river, is the little town of Luynes, the chief glory of whose château is its picturesqueness and its magnificent situation. Perched at the end of a range of hills, it has a fine view over the Loire, and looks very imposing when seen from it. But at closer quarters it is neither so big nor so powerful-looking as its neighbour. The buildings are partly fifteenth-century and partly early seventeenth, the latter marking the transition from the exuberance of the early Renaissance to the Classic school of Louis XIV.'s reign. The smallness of scale still remains, but a much greater quietness and sobriety of treatment has arrived.

Brickwork is not common in our part of the Loire country, and the only example that we saw of a brick château was Du Moulin. Built in the latter half of the fifteenth century, this château remained certainly until the middle of th nineteenth in the possession of the descendants of the origina builder. But since then, I fancy, it must have fallen upo evil days. Victor Petit, in 1861, describes it as being carefully furnished in the style of the time of its building. Bu an edition of the Guide Joanne, published twenty years ago only mentions the château casually, remarking that a portio is still standing. Its luck, however, has again turned. Th house was restored about six or seven years ago, is inhabite again, and beautifully furnished with contemporary furniture.

The general plan consists of a square platform surrounde by a moat. The whole of the east side is occupied by th gatehouse and adjoining building. In the centre of th north stands the house itself. Its plan is simple. There ar two rooms on each floor. A projection to the south contain the entrance and staircase, one to the north the offices, pantr and basement stairs on the ground floor, and bathroom above. A picturesque chapel juts out at the north-east corne The kitchen is in the basement, which is not sunk low enoug to be below the water-level of the moat.

The whole group is very quiet and very charming. It i historically a step in advance of the other châteaux that have mentioned, for it is no longer the castle of a feudal lord but the house of a gentleman, fortified, as the times still demanded. One envies the architect who had so interesting building to restore, and his skill in restoring it. I notic he has kept faithfully to the view in Petit's book. One addition only has caught my attention. The flèche over the gate house did not exist in 1860, and as an improvement it i open to question.

At the château of Blois we reach the Renaissance. Th building, indeed, really contains work to suit all tastes—Lat Gothic, Renaissance, and Early French Classic (for I alway think the term Renaissance is hardly suitable to mature an adult architecture, like that of the Louis XIV. wing here) But the chief glory of Blois, in the mind of the ordinar tourist, at all events, is the François I. wing. And certainl it is brave stuff. Curiously enough, it contradicts th proverb that "distance lends enchantment to the view," fo the closer one gets the more one admires the beauty of th detail, and the more one tries to get back and look at it as whole the more one is amazed at the happy-go-lucky way i which the design was set out. Philibert de l'Orme was n born a day too soon. At the time of the Renaissance Frenc masons were past masters of their craft. At Blois, indee there was no difficulty that they could not surmount, an the staircase is undoubtedly a very marvel of dexterity an beauty. But beautiful features do not necessarily mak beautiful architecture. And what was lacking in the earl days of François I.'s reign was the mind of the architect conceive and to control. The Renaissance meant the rebirt of architecture as intellectual design, and although the ol combinations of craftsmen tried hard to master its form they only attained to picturesqueness of detail, and neve reached with them the nobility that they had attained wit their own Gothic. To put what I think of this part of th château into present-day office slang, I should say that it ha been very cleverly "half-inched," but on a series of sma pieces of paper, and that the eight-scale elevations had neve received any consideration. As a result the building is alt gether without rhythm. The vertical divisions of the si facing outwards are almost exasperating. And it seems su a pity that this great accumulation of fine details (for th overloaded cornice on the courtyard side is the only one th is objectionable) were not combined and unified by some sy thetic mind.

The earlier entrance front is a happier piece of wor Here there is no pretence at regular fenestration. Stone sha make vertical divisions, and windows occur anywhere in th panels between. The effect is quiet, and the only blot the design as a whole is the doorway, a feature pushed anyhow, instead of one developed out of the general schem and one again showing the need for the modern archite that was growing even when the Renaissance had hard begun. The figure on horseback is of Louis XII., and modern. I cannot help thinking, by the way, from th iiche in which he stands, that the designer of the doorway vas more used to making tombs and monuments.

This whole front was greatly restored during the latter ıalf of the last century, as, indeed, was the whole château. ıfter the Revolution it was turned into a barrack, mutilated nd ill-used, until, in the early forties, after a tussle between he Minister of the Interior and the Minister for War, it ʼas rescued to be preserved as a *monument historique.* The nly part now remaining unrestored is the interior of the atest building, designed by François Mansart for Gaston 'Orléans about the year 1637, a building that was accounted sin by all true romanticists of the nineteenth century. Most eople nowadays, however, will think less hardly of it. Yet, hough well placed in the courtyard, it does not show to ıe best advantage in its surroundings, for mixed styles in rchitecture never get on together, any more than would Turner, a Raphael, and a Sorolla in close proximity in a icture gallery. The ceiling of the vestibule and staircase is ıe only part of this wing shown to visitors, and it is indeed 'orth coming to see.

After being somewhat irritated at Blois by the way in hich the François I. part, through carelessness of design, ıst misses the point of being really fine, the visit to Villeıvin on the following afternoon was indeed a blessing. [ere was a real gentleman's house, a house that no one ›uld live in without feeling the influence of its ordered renement. The disposition is eminently architectural, not ›solutely symmetrical; for instance, the two end pavilions ıry a little both in dimensions and detail, and the blank all of an orangery comes opposite the west wing shown on ıe screen, but the balance is perfect. The house seems to have ›en fortunate in having been built all at one time, and ithout serious alteration since. I should think that there ust have been stone mullions and transomes in the windows 'iginally, but I don't feel their loss is much to be regretted. › my mind, French mullioned and transomed windows are 'ten rather heavy-looking, and by no means so elegant in ıeir proportions as are the usual English variety. Villeıvin was built by Nicholas le Breton, Financial Secretary Francis I. The Le Bretons were a family of masons, and .is one managed somehow to improve his own house with aterials from Chambord, at the same time in course of ection. Two of the dormer windows on the right-hand side the courtyard were intended for Chambord, and for some ason not used there. Also, the beautiful Italian fountain, ing thought not good enough for a Royal residence, found ; way here. And possibly the exquisitely-refined doorway the orangery wall may have been another little picking. 'hether Francis ever got credit for these when the Chamrd accounts were being settled I have no idea, but the ct that De l'Orme, when appointed Surveyor-General to e Royal Buildings, dropped severely upon another member the Le Breton family, making him refund 18,000 livres er-payment for work at Fontainebleau, is significant.

(*To be concluded.*)

PARLIAMENTARY BILL ON "SEWERS AND DRAINS."

SESSIONAL meeting of the Institute of Sanitary Engineers was held on Monday, October 23, at Caxton Hall, estminster, for the purpose of discussing the Parliamentary ll on "Sewers and Drains." Mr. A. J. Martin, Inst.C.E., F.G.S., F.R.San.I., the president, occupied the ıir.

The discussion was opened by Mr. Percival M. Fraser, R.I.B.A. (Fellow).

The Bill, he said, has been introduced by the request of › Associations, viz., the Association of Municipal Corporans and the Urban District Councils Association, which ve the same objects in view. These societies have as their in objects to protect the interests of ratepayers as affected Public or Private Bill legislation, and are concerned with matters of local government, consequently they cannot ly be said to be representative of property owners.

Their task that evening was the twofold one of deciding ether the promoters have made out a good and sufficient e as to desirability of an amendment of the existing Act l whether the new Bill will fairly achieve this object in the t and most efficacious manner. Probably they would all unanimously in agreement with regard to an amendment the existing Acts. This left them with the single broad ıe for consideration, namely, whether the Bill is one ich will operate fairly between owners of property on the hand, and ratepayers on the other.

The matter has been receiving attention for many years past from property owners and others, and has been actively dealt with by associations interested in questions of Local Government. Bills have already been introduced into Parliament, but up to the present none have succeeded. They have either been dropped or mutilated to such an extent that the promoters have considered themselves justified in withdrawing them. The Lord Chief Justice (Lord Russell of Killowen), at the time, suggested that the time had arrived for consolidating in one Act the whole of the provisions of the Public Health Acts which were not only difficult to read comprehensively, but were not always easily reconcilable. The law might then—to use his Lordship's actual words—"be brought into a coherent and simple form, instead of being, as now, a fruitful source of litigation."

The Public Health Acts Amendment Act, 1907, originally contained clauses dealing with the matter, which were withdrawn as being prejudicial to the interests of the present Bill. The Local Government Board have been approached from time to time with a view to their introducing a Government Bill, but the Board up to date have got no further than promising to give their careful attention to any proposals which might be submitted to them.

This is the genesis of the Private Bill now before Parliament, which is supported by members representative of the associations named.

The Bill was presented and read for the first time during the present Session, but it is practically certain to fall through owing to the pressure of other work, precedence, of course, always being given to Government measures. This means that the Bill is to all intents and purposes even now dead. Should this be its ultimate fate, it will doubtless be resuscitated, and with small but important amendments will be a very great improvement on the existing law.

Mr. Fraser said he did not believe it to be possible to frame an Act on so controversial a subject which would not give rise to legislation, but at the same time an effort should be made to draft an Act free from absurdities so glaring as those which abound in the present Acts.

Under the definition the Public Health Acts, 1875, any drain which conveys sewage from more than one house becomes a sewer vested in and repairable by the local authority. It is not clear whether this is intended to apply only to underground drains, or includes vertical soil pipes, &c. There are many cases of combined use of soil and rain water pipes in terraced or semi-detached houses.

The exact definitions of "drain" and "sewer" read as follows:—"Drain" means any drain to and used for the drainage of one building only, or premises within the same curtilage, and made merely for the purpose of communicating therefrom with a cesspool, or other like receptacle for drainage or with a sewer into which the drainage of two or more buildings or premises occupied by different persons is conveyed.

"Sewer" includes sewers and drains of every description, except drains to which the word "drain" interpreted as aforesaid applies, and except drains vested in or under the control of any authority under this Act.

The promoters of the present Bill state that these are faulty on the following grounds:—(a) The extensive litigation which has taken place demonstrates the practical difficulties which arise. (b) It involves frequent interference with private property by the local authority. (c) It burdens the ratepayer with the cost of maintenance of private property in no way to the benefit of the community. (d) It does not permit of the best methods being employed in considering the drainage as a whole.

So far, so good. Nobody would dispute that these comments are just, and to the point. They at the same time show a state of affairs which—though obviously difficult to remedy—present a problem in Local Government (economics) which, aided by the experience of past troubles, should be capable of a rational solution.

The justness of these comments is vindicated by the fact that when the Public Health Act in 1890 was amended, an attempt was made to overcome these difficulties. (This Act, it should be noted, is adoptive wholly or in part, that is to say, the local authority need not, unless it suits their convenience, adopt the Act, or any part of it.)

A section amended those quoted above by providing as follows:—

Where two or more houses belonging to different owners are connected with a public sewer by a single private drain, an application can be made under Section 41 of the P.H. Acts, 1875 (relating to complaints as to nuisance from drains), and the local authority may recover any expenses incurred by them in executing any works under the powers conferred on them by that section, from the owners of the houses, in such shares and proportions as shall be settled by their surveyor or (in case of dispute) by a Court of Summary Jurisdiction.

For the purpose of Subsection 3, the expression "drain" includes a drain used for the drainage of more than one building.

The section of the original Act referred to is briefly as follows:—Any person may notify the local authority as to any drain, &c., in their district being a nuisance, when the local authority is empowered to examine such drain. If the drain is defective the local authority shall cause the owner or occupier to put same into a proper condition at his own expense, or in certain circumstances may do the work at their own cost.

Objection has been raised to this amendment on the following grounds:—(a) It applies only to houses in different ownership. (b) A "single private drain" continues to be a sewer vested in the local authority and, according to the finding of the Courts, unless they are the first to call attention to defects, they must repair it at the public expense. (c) A combined drain conveying sewage to a cesspool is under this section a sewer repairable by the local authority. (d) According to the finding of the Courts, the section only applies if the drain is one which the P.H. Acts, 1875, requires the owners to provide under sections 23 or 25. (Section 23 empowers the local authority to order drains to be constructed to houses without sufficient drainage. Section 25 provides that new houses shall be provided with proper drains.) (e) There must exist in every district many sewers repairable by the local authority, who do not even know of their existence.

It is difficult to know what is really intended by this section, as its effect has been to greatly multiply the number of law cases, and cause unceasing controversy.

The main object of the Bill is stated to be to effect a broader distinction between a drain and a sewer.

The first criticism that one may make on the broad statement contained in the Bill is the word "highway," which, strictly speaking can mean nothing but a public road. It states also that drains laid by a private person along a private street are to be sewers, provided they are constructed to the satisfaction of the local authority. On the face of it, it would seem to be best for the ratepayer to let the private individual maintain his sewer if he so wishes, and in any case the local authority should see that all drains acting as sewers in the ordinary sense of the term should be constructed to their satisfaction.

With regard to the actual wording of the Bill, this could, and should, be materially altered, in order to obtain the best results.

Section 2 defines drains by the involved process of eliminating all those things which are not drains. This makes it difficult of comprehension, involved in meaning, and militates against its general utility. It is too much to expect anything in the nature of honest commonsense in an Act of Parliament, but this would appear to be an extreme limit of complexity. It states in as many words that every "sewer" shall, with certain exceptions, be a drain and not a sewer.

Considering the subsections seriatim, Mr. Fraser made the following remarks. Subsection (a) needs no comment. Subsection (b), this is in effect quite covered under subsection (c). Subsections (c and d) require no comment. Subsection (e), in his opinion, should most certainly be struck out of the Bill. It was difficult to conceive why sewers made for a person's own profit should be maintained and repaired at the cost of the general public. Subsections (f to h) need no comment. Subsection (i) should be amplified to explain in what way the water-course could become a sewer. It should be noted at the end of this clause which local authority is referred to.

A hint for the better framing of this Act might be borrowed from the number of private Acts, now over 60 in number, which have been passed to overcome the acute difficulties experienced in various localities.

The City of London is exempt from the general provisions of the Public Health Act dealing with sewers and drains, it being governed by Metropolis Management Act and the Public Health (London) Act, 1891. Under this Act the definition of drain follows the Public Health Acts, 1875, but with the following important addition:—" And shall also include any drain for draining any group or block of houses by a combined operation under the order of any vestry or district board."

The Metropolis Borough of Woolwich was up to 1900 outside the scope of the Metropolis Management Acts, so that it now holds a unique position with regard to sewers and drains which are governed by a Special Act, entitled Woolwich Borough Council Act, 1905. Section 21 provides that drainage constructed before November 1, 1900, which drains "any group or block of houses by a combined operation," shall be a drain and not a sewer.

Section 2 needs no comment.

In Section 3 it is a doubtful policy to introduce the words "belonging to different owners," which seems to have been such a prolific source of controversy ever since 1875.

The following are of general interest in considering the whole question:—1, Single private drain has been defined as one in private ground to which there is no public access. 2, Neither owner of a combined drain can open up without trespassing. 3, The vesting of sewers with a local authority does not give them ownership of the soil. 4, Sewer made for profit does not mean for money profit only, and in some cases does not even mean for money profit. 5, Sewers constructed and maintained by a voluntary rate do not vest in a loca authority. 6, A block of flats is one house for the purpose of these sections of the Acts. 7, The site of a house is the ground on which the house stands, but does not include the curtilage In conclusion, one must again express regret at the defects o the Public Health Acts, 1875, relating to drains and sewers and of the remarkable ineptitude of the somewhat grotesque amendment of 1890. There has been more litigation arising from these sections of the Act than from the rest of the Ac put together.

The associations and individuals who have spent so freely of time and money in the past to remedy these defects ar deserving of best thanks.

That the Government has not legislated in a matter s urgent that over 60 private Acts have been passed to mee the difficulties is somewhat scandalous.

Mr. G. W. Chilvers proposed a very hearty vote of thank to Mr. Fraser for the way in which he had placed before them the main points of the Bill. They were all agreed that legis lation on this matter was required, and had been required fo a very considerable period, apart from all the legal case which have proved the same thing. The question was "Which is the best way of altering the present state c things?" Instead of further amendments to the Publi Health Acts it would be far preferable to get a consolidatio of them all. But with regard to the Bill about which the had just heard, it was a question of amending it in the righ way. The modern tendency was to municipalise everythin The promoters of this Bill (whether it was because they ha had a great deal of experience of the dangers attachin thereto he did not know) seem to wish to relieve the loca authorities of all difficulties by putting the onus on to privat owners. Whether that was the best course was open to que tion. In combined drains there were many advantages whic could not be overlooked from a public health point of vie and from that of economy. There seemed to be no reaso from a public health point of view why a Bill should not b drafted to make the matter clear. It could be taken as a pr position that a good drainage system was a valuable asset any community. For that reason it should be vested in th local authority, and not in a private individual, and, ther fore, any Bill passed to amend the present law should hav that end in view. There were, of course, two sides to ever question, and there were many difficulties attaching to th subject from whichever way one looked at it. Supposin this Bill were passed, it is quite possible that nine-tenths the sewers of new suburbs would be drains and not sewer so that the best part of the sewers of the district would drains, and not vested in the public authority. Such a sta of affairs was undesirable from a public health point of vie Clause 3, Section B, seemed very unsatisfactory, becau supposing there was a street of twenty houses, each of whic was in a different ownership, and reconstruction of the dra was required at any one part of it, the local authority a able to call upon any one of the tenants of that proper (failing the owner) to put the drainage in repair forthwith. is possible the defects might not be in that particular owner property. They might depend upon it that if there we half a dozen different owners, and only one a man of financi substance, the local authority would go for him. He believ that as far as possible all drains except those in one curtila should be sewers repairable by the inhabitants at large. the public authority is called upon to keep them in prop order, they are more likely to be done properly than if le to private owners. The public authority has a right to ent upon private property if a drain is defective, and they wou have no greater right under the Bill. These matters we not a question of the interests of individual sanitary e gineers, or the sanitary authority themselves, or of th owners, but the best interests of public health. So it r

›lved itself into this: "In which way will the drains be ıaintained in the best manner?" The more we can get each rain vested in the engineering department of the local ıthority the better they are likely to be constructed and aintained.

Mr. J. T. Griffin said that, speaking as a public official, had to confess that he was in favour of the Bill *in toto.* erhaps he might except one or two minor points. Mr. raser had suggested that all highways were repairable by the habitants at large. This he did not think was the case. e had one instance in his mind where a road was partially ade up under the Private Streets Act, and although it was wered, lighted, and gravelled they did not consider the road ıs in a condition worthy of being taken over by them as the al authority. The whole Bill seemed to him to be useful, d as far as he was concerned he hoped it might go through th one or two exceptions. He failed to see why a system combined drainage should be repairable. The local thority derived their money from the ratepayers gener- y, and they therefore should not be expected to do work special property owners. If a number of houses belonged him, and he had a combined system of drainage for them, d one of his tenants stopped up the drain, why should the epayers in another part of the district be called upon to the repairs to a private drain?

Mr. Chambers Smith thought it was undesirable that ners should be allowed to construct their drains as they se. The majority of builders, for example, did not go in good work, but rather for constructing houses as cheaply possible, and especially the drainage. In his opinion, Bill could not be very much improved upon. Many of the clusions to which Mr. Fraser had arrived came from an perfect knowledge of the Public Health Acts, and they l not heard anything to show much fault was to be found h the Bill. There was, undoubtedly, always a tendency municipal officials to look at things from the point of w of the local authority, and to bleed the owners as much hey could. At this present time the law was about in as fused a state as it could be. But the local authority who e to legislate for the greatest good of the greatest number st consider their obligations towards the people at large, not to certain owners who wish to make money at the ense of the greatest number.

Mr. F. W. Mason said he believed the Bill was drawn up the representatives of the Municipal Associations, the an District Councils, and other bodies round London. as to everybody's interest to see that the Bill was amended uch a way as to stop litigation. In his own experience s had occurred in which the owners, on being called on ut right certain defects in their drains, refused to do so, ıding that the drains were vested in the local authority. the latter body would not touch them either, the nuisance t on as before, and the public continued to get poisoned. ely, a Bill could be drawn up by which all drains after have left the house and been carried into a common drain ıld become a sewer. That should be done in this Bill. ryone knew that now no builder could lay any drains ss he had first submitted his plans to a local authority. he district he was most conversant with they looked after e matters pretty well, and they not only inspected the ıs, but they also tested the drains after their completion. prevented shady work, and it made it their business e that the drains were all right and in a fit state to be n over. For his own part, he certainly thought that the le of the sewers should be vested in the municipal ıority, who saw after them when they are laid down, and should see that they were kept in repair. There were now acres of property where the sewers are a disgrace, some of these were not five minutes' walk from the ling in which they then were.

Ir. Baxter was of opinion that, thanks to the official rvision, however jerry-built the house might be, they d not find the drainage jerry-built. The plans had to be ed first, and then tested before filling in.

Ir. Chambers Smith pointed out that the previous speaker hardly correct, because in many places there were no by-laws. In other cases the plans might be passed as factory, but unless they had a very able sanitary in- or they were sure to be unsatisfactory.

Ir. E. R. Palmer considered that in many instances uld be to the builder's advantage if he were made liable he whole of the drains. That course would certainly a large amount of litigation. The owners would know responsibility, having completed their work to the satisfaction of the local authority. The builder should also be liable, as owner, to keep that drain in proper repair. He believed that each house should be self-contained; that is, the drains should be complete in themselves, and finishing in a manhole before they enter the highway in the rear. If the owner were held responsible for the working of the drains matters would be greatly simplified, and there would not be very much difficulty in interpreting the law.

Mr. T. F. L. Gopsill, speaking from a personal unfortunate experience, said there was something to be said for the unfortunate house-purchaser if the local authority failed to see that the work they were supposed to supervise was not carried out properly. The Public Health Acts had been brought into force, not for the sake of finding sanitary inspectors and surveyors something to do, not for screwing something out of property-owners, but in order that the public should be protected. In the same way, if the Government authorised the local authority to inspect drains and take over sewers it was done for the sake of the people in the neighbourhood of those drains and sewers. The state of the drainage did not often affect the men who put it down; it was the neighbours and fellow-ratepayers who suffered from defective work. He had found the Bill they were discussing that night very difficult to understand, and after reading it through a great many times he was not yet clear in his mind about it.

Mr. A. Alban H. Scott remarked that it was a very short Bill, but the litigation which has taken place on the matters dealt with justified its most careful consideration. The various interests concerned might be classed as—(1) The health of the general community; (2) the interests of the County Councils and local authorities; and (3) the interests of the private individuals. The County Councils and authorities did not always have in view the interests of the general community. If the public authority had a choice of two alternatives they might be depended upon to always select the cheapest. According to his own experience, architects sometimes got imposed upon by builders, and even with the best intentions on the architect's part they sometimes got jerry-built drainage work. It seemed to him that the framers of the Bill had gone on the assumption that it was necessary to use the words which had given rise to so much litigation in the past, and without making any attempt to define those terms, whereas many of the terms should be either defined or very clearly amplified. The Bill seemed to promise no advance from the public health point of view, and certainly none from the legal point of view. He himself was in favour of the local authority taking over the whole of the combined drainage system. If combined drainage were allowed in the future the Council ought to take it over. He would prefer combined drainage to be cut out altogether, and for them to start with a clean sheet.

Mr. A. J. Martin, the Chairman, in closing the discussion, said there was one point on which they had all reached agreement, and that was as to the existence of a state of hopeless confusion with regard to this question. He was not sure that their agreement went very much further. It was very easy to look at a question of this kind from a single point of view, and to come to very simple conclusions. But the present Bill dealt with a complicated question beset with many conflicting considerations. A grave hygienic objection existed to the multiplication of drains. To combine the drains from two or three houses was to reduce the length of drains in the district, and to benefit the interests of public health. In country districts the houses often lie a long way back from the main road, necessitating a considerable length of drain. For these there is but little fall, and the flow is so small it is very difficult to keep these drains properly clear. But when it is possible to group the drains, this difficulty is escaped, because the flow is quite sufficient to clear the drains. Then there was another consideration. Frequently houses have their conveniences at the back, while the sewer is in front. But to have a drain under each house was very undesirable, and from a sanitary point of view the sewer should be at the back. The proposed Bill was, he thought, emphatically an occasion for taking broad views. The local authorities did not, to his mind, always do this, and were chiefly concerned with avoiding expenditure which could be cast upon a private individual, whereas the main consideration to be held in view ought to be public health. It was not possible to limit the consequences of bad drainage to the owners or occupiers, for they spread far beyond the people immediately interested in those drains, and are sometimes felt very severely by the inhabitants at large. It was therefore in the best interests of health to exercise the greatest possible control over the drainage. He presumed that one of the objects of an Act of Parliament was not to provide work for the profession engaged in unravelling Acts of Parliament. The fact that no by-laws exist in some places suggested one of the great difficulties. The local authority should have powers granted to them irrespective of ever going to Parliament for laws. There ought to be powers given to all local authorities to deal with questions which affect the interests of the public.

A vote of thanks having been accorded, Mr. Fraser replied.

THE GLASGOW TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.

AT a meeting of this Society held in the Societies' Room, in the Technical College, Mr. James S. Boyd, President, in the chair, Professor Charles Gourlay, B.Sc., A.R.I.B.A., delivered a lecture entitled "The College Diploma and Certificate Courses in Building." In his introductory remarks the lecturer pointed out that it lies more with the student himself whether or not he succeeds in obtaining a thorough knowledge of his subject than with his teachers or the general course which has been planned out for him. The student requires to exercise such qualities as earnestness and thoroughness, also the faculty of taking pains to understand and learn what he is taught. From the practical point of view the most important quality to be cultivated by a student of building is the habit of accurate observation. Assuming a student to possess these qualities, then the greatest profit, in so far as attendance at classes is concerned, will accrue to him if he takes those classes in the order which experience has proved to be most beneficial. The fundamental idea underlying all courses of instruction is the desire on the part of the educational authorities that the student should receive a good foundation and a thorough equipment for his work in life. They wish him to leave college strong in his subject and able to pursue his labours with as great certainty of being right in them as is possible. The lecturer then detailed the day and evening courses in building, dealing with the entrance examinations, the continuation schools, and the place they fill in the courses of study which lead ultimately to the junior and senior certificates and to the diploma of the Technical College, which is the highest point at present attainable by the student of building. In conclusion the lecturer said that the education of the building student was a serious matter, and much of that genuine happiness to be found in one's work in life depended on the sense in which he pursues his studies, which, when completed, should greatly add to his skill and to the pleasure in exercising it which practical work affords him.

LECTURES ON SANITARY PLUMBING.

A MEETING was held on Wednesday evening, October 18, at the L.C.C. Schools, Ferndale Road, Brixton, to inaugurate the winter course of special lectures to be given on the subject of sanitary plumbing. Mr. W. D. Caroe, M.A., F.S.A., architect to the Ecclesiastical Commissioners and Past Master of the Worshipful Company of Plumbers, presided. There was a large attendance of plumbers from all parts of London and district.

The Principal, Mr. H. W. Richards, who welcomed the audience on behalf of the Chairman and Committee of the school, expressed appreciation of the work of the Council for the National Registration of Plumbers in organising the meeting and their interest in the work of the school. He thanked Mr. Caroe for his presence, and referred to his continuing support of efforts in the promotion of the efficiency of plumbers' work. He said such recognition of the value of the school would be encouraging to the L.C.C. as affording further proof of the wisdom of their expenditure upon it.

Mr. Caroe explained that he presided in the absence of the Lord Mayor, and read the following letter from his Lordship:—

Mansion House, London, E.C.,
October 17, 1911.

Dear Sir,—When I consented to preside at the inaugural meeting of the winter course of instruction on sanitary plumbing to be given at the L.C.C. School of Building at Brixton, I was obliged to stipulate for an earlier hour than it was subsequently found would be convenient for the attendance of plumbers and others. In these circumstances I have no alternative but to express my regret that I am quite unable to be present.

I regret this the more that I feel the object of the lecture is one most heartily deserving all the support I could possibl render by attendance or otherwise, whether in my capacit as Lord Mayor or as Master of the Worshipful Company o Plumbers.

Changes in domestic habits and the great increase in th number of sanitary appliances of all kinds add greatly t the complexity of plumbers' work in and about the house of the people, and I feel the London County Council ar entitled to the gratitude of the community for the suppor they are giving to the classes of instruction for plumbers.

I understand that these classes are instructed by prac tical teachers, well versed in the technicalities of the trad and well abreast of modern sanitary requirements, and th plumbers of London are thus brought to regard the classe with confidence as affording fit training for the apprentice and young men entering the plumbing trade.

This confidence and the co-operation of the men in th trade with the school authorities is, of course, essential t the success of the classes.

I am glad to learn that the Managing Committee, whic acts with the Plumbers' Company for the National Regis tration of Plumbers, heartily appreciates the working of th classes, and I shall therefore be pleased to move the Cou of the Company to consider offering some award to successf students attending the course of instruction given at th school.—Yours truly,

(Signed) T. VEZEY STRONG, Lord Mayor.

Mr. Frank Randall, R.P., Secretary to the General
Council for the National Registration of Plumbers.

Mr. Fretwell, R.P., teacher of sanitary plumbing, d livered a lecture on domestic water supply. He describe the various forms of boilers and methods of circulatin hot water by the cylinder, tank, and auxiliary systems. Th lecture was illustrated by numerous diagrams, and part culars were given of the relative costs of heating water coal and coke fires and electricity.

Mr. Caroe congratulated the lecturer on the practic character and lucidity of his treatment of the subject, ar expressed the hope that the lecture would be published f reference.

A vote of thanks to Mr. Caroe was moved by Mr. Wright Clarke, seconded by Mr. W. Beecroft, support by Mr. J. Beeston, and carried with acclamation.

There were present on the platform Mr. Charles Hudso Past Master, and Mr. W. R. E. Coles, Clerk to the Wo shipful Company of Plumbers, and Mr. Frank Randa R.P., Secretary to the General Council for the Nation Registration of Plumbers.

At the conclusion of the lecture, specimens of t standardisation mark applicable to plumbers' work und regulations of the Board of Trade were shown on pipes lead, cast iron, wrought iron and copper, and the Clerk the Plumbers' Company briefly explained the system marking.

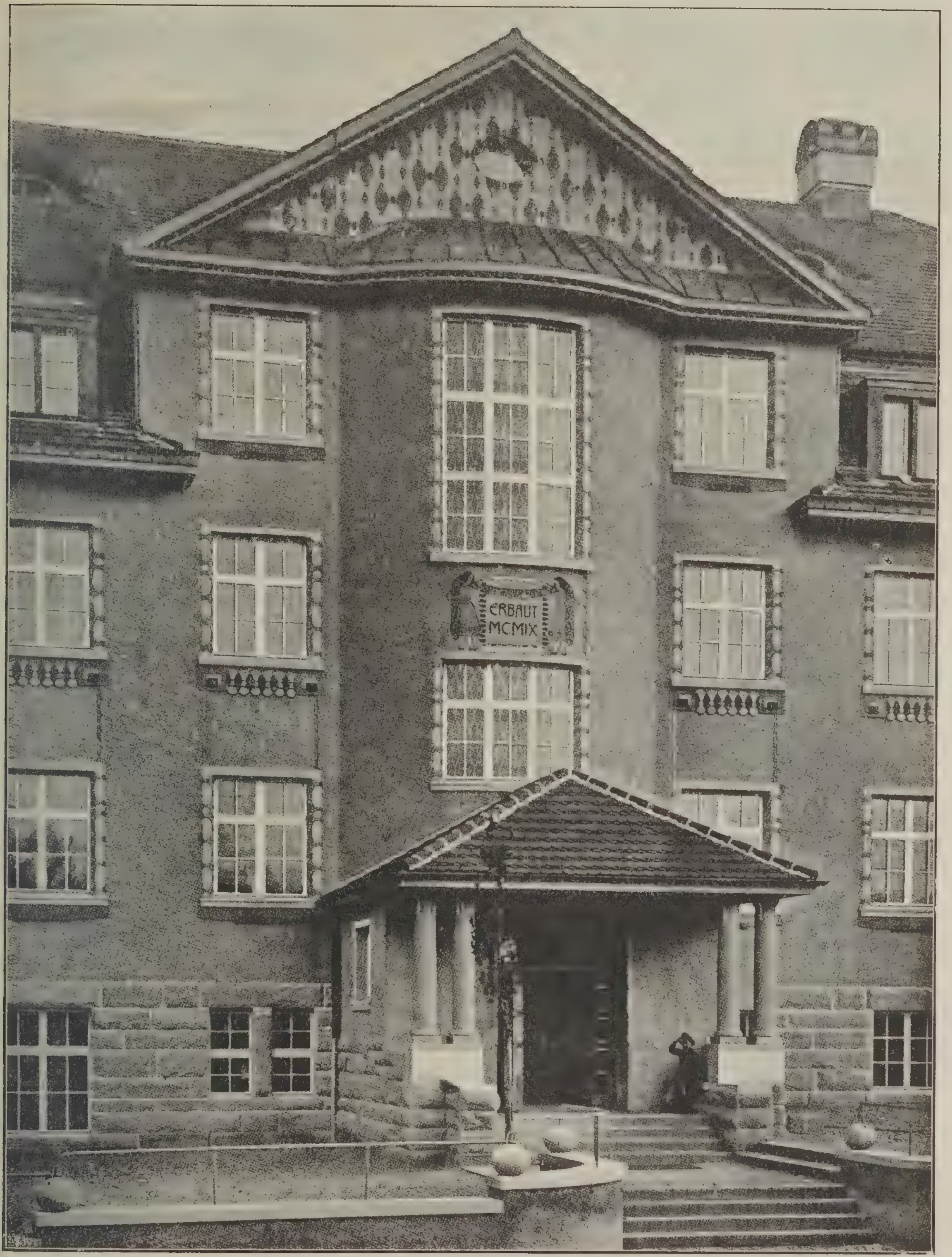
LECTURES ON HEATING AND VENTILATIO AT UNIVERSITY COLLEGE, LONDON.

THIS subject was further dealt with by Mr. Barker, B. B.Sc., in his third lecture on the "Real nature of t problems in heating and ventilation awaiting solution the engineer," on Tuesday, October 31.

He had referred in a previous lecture to desirable te peratures and heat cost, and now proposed to briefly exami the question of economy of heat by thermo-dynamic metho Under this heading he suggested that the heat from the outside a building might be used for warming the interi although of a much lower temperature than that requi for this purpose. An analogy could be drawn between su an idea and that of a water supply drawn from a high-le lake or stream, the water thus reaching the consumer at pressure more than sufficient for the needs of the case, wh a great percentage of the energy in the water was being was because it happened to be greatly in excess of that requi to reach the consumer's taps or cisterns. In fact, the press of the water had to be neutralised or impeded in such ca before it could be conveniently used for domestic purpos It was quite possible to utilise the vast store of energy in t high-level water by passing it through a turbine, which co be used, say, to pump deep well-water to a reservoir at level just high enough to supply the same at a convenien low pressure for ordinary purposes. At the same time exhaust-water from the turbine might still be used by allo ing it to pass into the low-level supply. Thus full adv

MODERN EUROPEAN ARCHITECTURE.

GERMANY.



[From *Moderne Bauformen.*

WRITING SCHOOL AT KREUZLINGEN.—Herren Weideli & Kressibuch, Architects.

age would be taken of the high pressure of the natural upply to pump and store deep well-water for purposes equiring a low-pressure supply only, without even wasting he water thus used.

We could apply a similar idea to the utilisation of heat at resent wasted. Just as water was required at low pressures) was heat—as far as the warming of inhabited buildings as concerned—required at low temperatures. The methods eretofore adopted had been those concerned with heat con-uction, convection, and radiation, the body to be heated eing at a lower temperature than the means of heating, and ; was supposed that heat would only flow in the direction of rise in temperature. Water would only flow downwards, ut it could be made to flow in any desired direction by pumping. So also could heat be extracted from the air by pumping, although it might be at a lower temperature than was required. The method was simple, although the first cost of the necessary machinery, to which must be added the cost of depreciation, made the provision of power an expensive item at present. The existing price of coal and the ease with which heat could be extracted from it rendered our present methods so cheap that it was not worth our while to save this cost.

The thermo-dynamic method of producing heat consists of the simple operation of compressing a gas, which act is sufficient to raise its temperature in proportion to the amount of energy expended in so doing. Conversely if the gas is allowed to expand, a corresponding diminution of temperature takes place. The sudden compression of 1 lb. of air at atmospheric pressure is sufficient to raise its temperature from 40° to 80° F.—an increase of 40°—the amount of energy necessary to accomplish this being 7,340 foot-lb. If then brought into contact with a body which it is required to warm, say a volume of water, the same temperature can be maintained by the expenditure of 12,450 foot-lb. of energy, the pressure then being two atmospheres, or 29.4 lb. to the square inch. On the volume of air being removed from contact with the water and allowed to expand suddenly to a temperature of 40° it will be found to give off the same amount of energy as was originally put into it to raise its temperature through 40°. The difference between the work expended in maintaining the temperature at 80° while in contact with the water and the total heat obtained represents the only cost of the latter, which works out at 1,150 foot-lb. of the 19,790 expended.

Heating engineers have yet to fully appreciate the enormous economy of such methods of heat production which resolve themselves into the provision of a cheap power supply; for it is necessary to have power before heat can be obtained from the air in this way. The provision of electrical energy without the consumption of fuel would be a solution of the problem, although not within sight of realisation at the moment.

THE ROYAL INSTITUTE OF PUBLIC HEALTH.

BERLIN CONGRESS, 1912.

THE Council have accepted an invitation from the Ober Burgomeister (the Lord Mayor) of Berlin to hold their Congress in 1912 in that city, from Thursday, July 25, to Sunday, July 28, inclusive, and a Local General Arrangements Committee has been formed consisting of representatives of the Royal Ministry of the Interior, the Imperial Board of Health, the City of Berlin, the Medical Officers of the Headquarter Staffs of the Army and Navy, the University of Berlin, the Medical and Hygienic Societies of Berlin, &c., to promote the success of the meeting.

The Congress will be under the presidency of the Right Hon. the Earl Beauchamp, K.G.M.G., LL.D., his Majesty's First Commissioner of Works, and will be conducted in the following sections:—

A. State Medicine.—President: Sir T. Clifford Allbutt, K.C.B., M.D., LL.D., D.Sc., F.R.S., Regius Professor of Medicine in the University of Cambridge.

B. Bacteriology and Comparative Pathology.—President: Professor G. Sims Woodhead, M.A., M.D., LL.D., F.R.S. Ed., Professor of Pathology in the University of Cambridge.

C. Child Study and School Hygiene.—President: Sir James Crichton-Browne, M.D., D.Sc., LL.D., F.R.S., Lord Chancellor's Visitor in Lunacy.

D. Military, Colonial, and Naval.—President: Major Sir Ronald Ross, K.C.B., M.D., D.Sc., F.R.S., Professor of Tropical Medicine in the University of Liverpool.

E. Municipal Engineering, Architecture, and Town Planning.—President: P. C. Cowan, D.Sc., M.Inst.C.E., Chief Engineer of the Local Government Board, Ireland.

The various Congress and Sectional Officers will also include gentlemen of German nationality occupying distinguished scientific and municipal positions.

Facilities will also be afforded for visiting the various public health and educational institutions in Berlin, &c., in connection with the Imperial Board of Health, the Municipality, the University, &c., and it is confidently hoped that the Congress and the unique opportunities which will thus be given to representatives of municipalities, county councils, and other sanitary authorities of the United Kingdom for becoming practically acquainted with institutions in the work of which they are concerned will not only be of much interest but of the greatest value.

Arrangements are being made for travelling and hotel accommodation at reduced charges.

The subscription for each delegate is one guinea.

COMPETITION NEWS.

BARNSLEY.—The Town Council recently invited competitive drawings for a proposed extension of public baths, including a swimming bath, Russian and vapour baths, and slipper baths, in connection with the existing public baths in York Street and Race Street, Barnsley. Premiums of £50, £30, and £20 were offered. The assessor's awards in the competition, for which 25 sets of plans were sent in, were made known last week as follows:—1, Mr. E. Burgess London; 2, Messrs. Bowden & Wallis, London; 3, Mr. E. W Dyson, Barnsley.

Correspondence

[The Editor will not be responsible for the opinion expressed by Correspondents.]

Australian Federal City Competition.

SIR,—I have just received from the Honorary Secretar of the Institute of Architects of New South Wales a cop of a notice issued by the Council of that body asking thei members not to take part in the competition unless the con ditions are made more satisfactory. The Competitions Com mittee of the Royal Institute are considering this notic with a view to recommending the Council to take simila action as soon as possible. I send you with this a copy c the notice I have received.—Faithfully yours,

IAN MACALISTER.
Secretar

October 30, 1911.

Institute of Architects of New South Wales,
Royal Society's House,
5 Elizabeth Street, Sydney,
September 191

To Members of the Institute of Architects of New Sout Wales.

SIR,—With reference to the competition for designs fo the Federal City, as the Federal Government have refused t amend the conditions of this competition in the matter of th appointment of assessors, and the final decision is in th hands of the Minister alone, in spite of the recommendation made by the Institutes throughout the Commonwealth as we as the Royal Institute in London, my Council has decided t ask the Members of this Institute not to take part in the com petition unless the conditions are made more satisfactory.- I am, yours faithfully,

ARTHUR WM. ANDERSON.
Hon. Secretar

New Indian Patent Act.

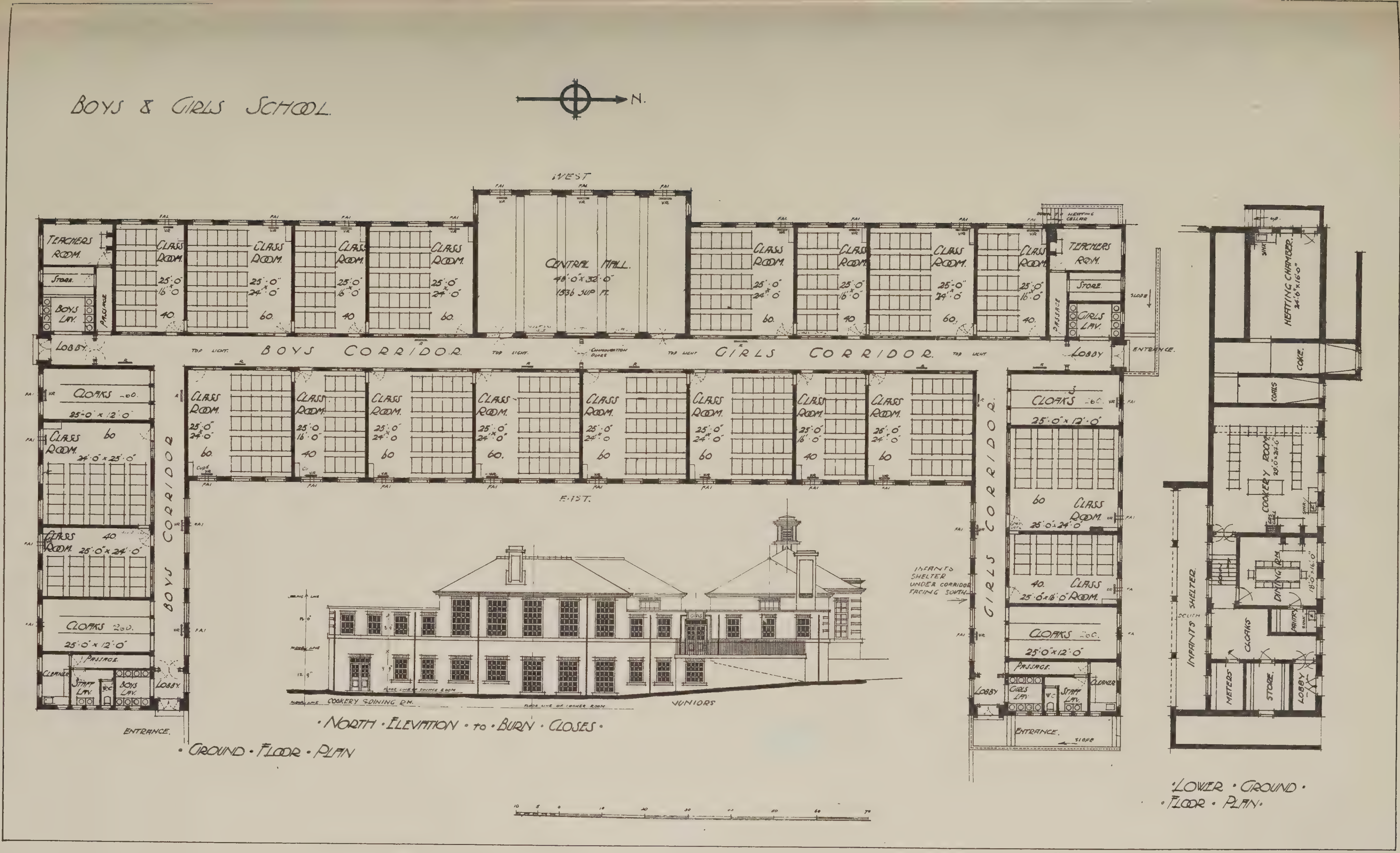
SIR,—May I, through the columns of your paper, brin to the notice of such of your readers as are interested i Indian patents the fact that a new Act comes into force i India on January 1, 1912, which will alter the condition under which valid patents are obtainable? The particula point to which I should like to draw attention is that, unde the new Act, valid letters patent cannot be obtained for a invention which has been previously used or published (as b the printed British specification) in India. Under th present Act, however, it is allowable to file an application a any time within one year of the filing of the British appl cation, or of the actual sealing of the British letters paten Therefore, any intending applicants for Indian patents c which the corresponding British specifications are now pul lished, or will be published by December 31 next, shoul take care to have their applications filed before that date.- Yours faithfully, CHAS. B. KETLEY.

Birmingham: Oct. 25.

The Crystal Palace.

SIR,—As one who attended the meeting at the Mansio House in reference to the purchase of the Palace an grounds, I want particularly through your pages to tende to Lord Tenterden and his friends my hearty appreciatio of his efforts in this direction, and I am sure that of man of your readers. His scheme and hard work it was tha at last awakened the sleepy ones at the Mansion Hous to the fact that it was time something was done in th matter, and I most heartily concur in the remarks whic fell from the lips of Alderman Sir Wm. Treloar. I, to consider that Lord Tenterden has deserved better of th City, and ought to have been shown more consideration; bu whether his admirable scheme goes through or whethe the Corporation of the City of London carry out the scheme I am sure that Lord Tenterden and his influential Counc will deserve full credit for having forced the matter throug by their efforts, and the aid afforded by your influentia journal.—Yours faithfully. A SYDENHAMITE.

London, S.E., October 31, 1911.


BOYS & GIRLS SCHOOL.
N.
WEST
CENTRAL HALL. 48'·0" x 32'·0" 1536 SUP FT.
TEACHERS ROOM.
STORE.
BOYS LAV.
GIRLS LAV.
PASSAGE
CLASS ROOM. 25'·0" x 16'·0" 40
CLASS ROOM. 25'·0" x 24'·0" 60.
LOBBY.
BOYS CORRIDOR.
GIRLS CORRIDOR.
TOP LIGHT.
COMMUNICATION DOORS
ENTRANCE.
CLOAKS 200. 25'·0" x 12'·0"
CLASS ROOM. 24'·0" x 25'·0" 60
CLASS ROOM. 25'·0" x 24'·0" 40
CLASS ROOM. 25'·0" x 16'·0" ROOM. 40
CLEANER
STAFF LAV.
W.C.
EAST.
INFANTS SHELTER UNDER CORRIDOR FACING SOUTH
SLOPE
HEATING CELLAR
JUNIORS
COOKERY & DINING RM.
• NORTH • ELEVATION • TO • BURN • CLOSES •
• GROUND • FLOOR • PLAN
HEATING CHAMBER. 24'·6" x 16'·0"
COKE.
COALS
COOKERY ROOM. 25'·0" x 24'·6"
DINING RM. 18'·0" x 16'·0"
PANTRY
SINK
CLOAKS
INFANTS SHELTER.
SOUTH
METERS
STORE.
LOBBY
• LOWER • GROUND • • FLOOR • PLAN •
10 5 0 10 20 30 40 50 60 70

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PREMIATED COMPETITION DESIGN FOR SCHOOLS, WALLSEND-ON-TYNE.

Mr. EDWARD CRATNEY, Architect.

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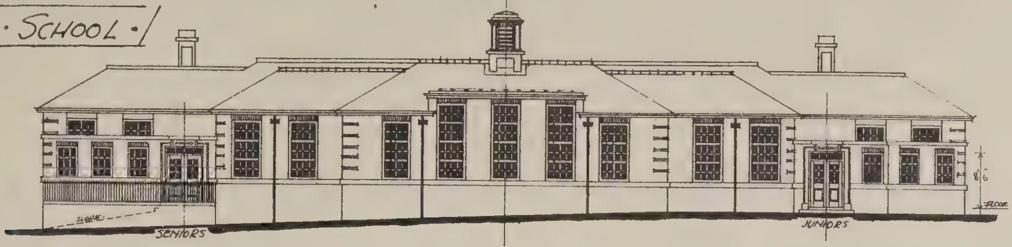
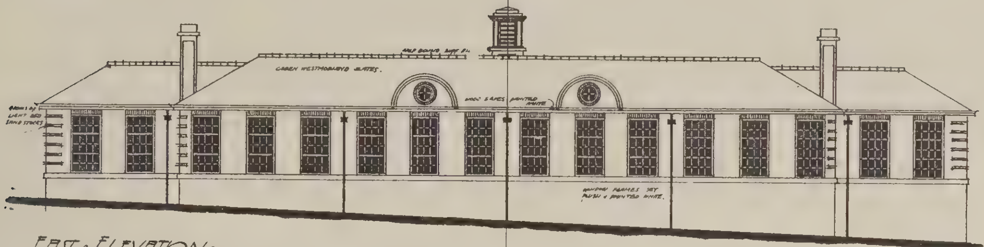
·INFANTS · SCHOOL ·



WEST · ELEVATION ·



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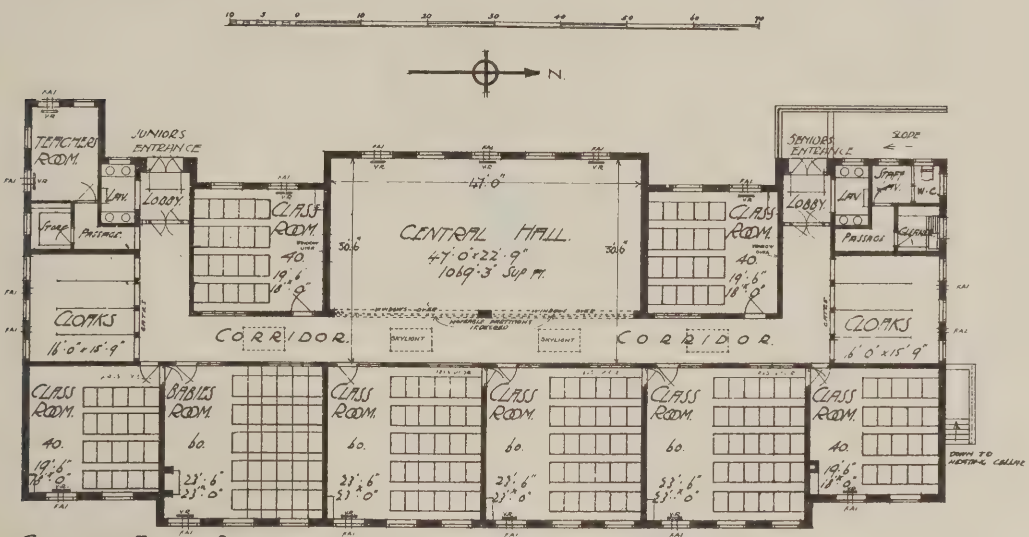
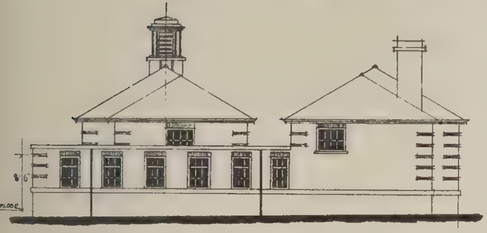
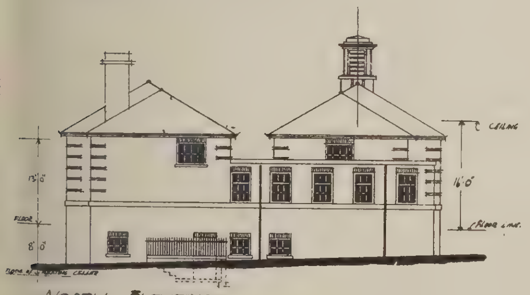


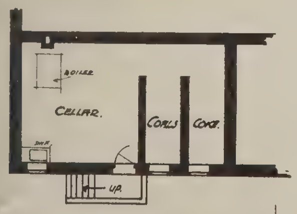
· GROUND · FLOOR · PLAN ·



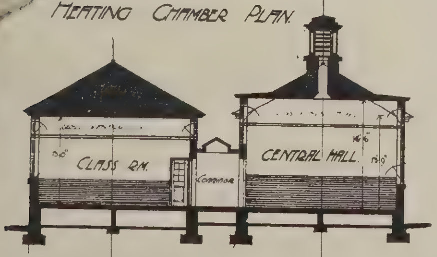
· SOUTH · ELEVATION ·



NORTH · ELEVATION ·

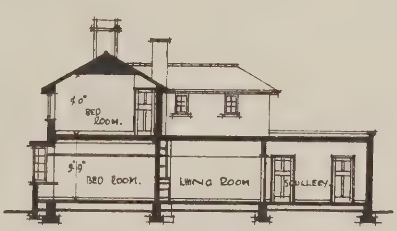


HEATING CHAMBER PLAN.



· SECTION · A · B ·

·CARETAKER AND ·HOUSE CRAFT :



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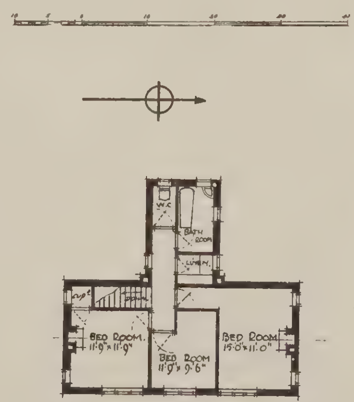
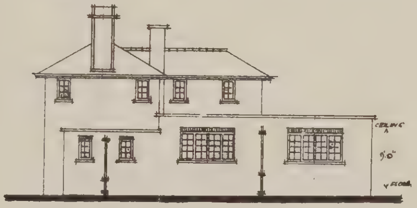
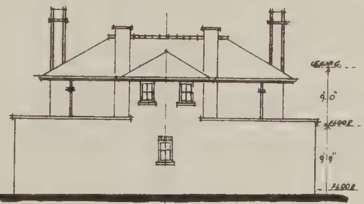


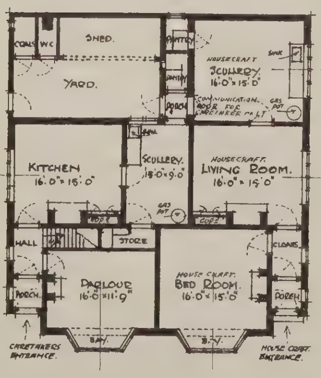
·FIRST FLOOR PLAN :
(CARETAKER)



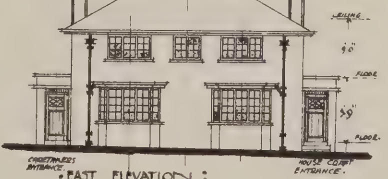
·NORTH ELEVATION :



·WEST ELEVATION :



·GROUND FLOOR PLAN :



·EAST ELEVATION :

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PREMIATED COMPETITION DESIGN FOR SCHOOLS, WALLSEND-ON-TYNE.

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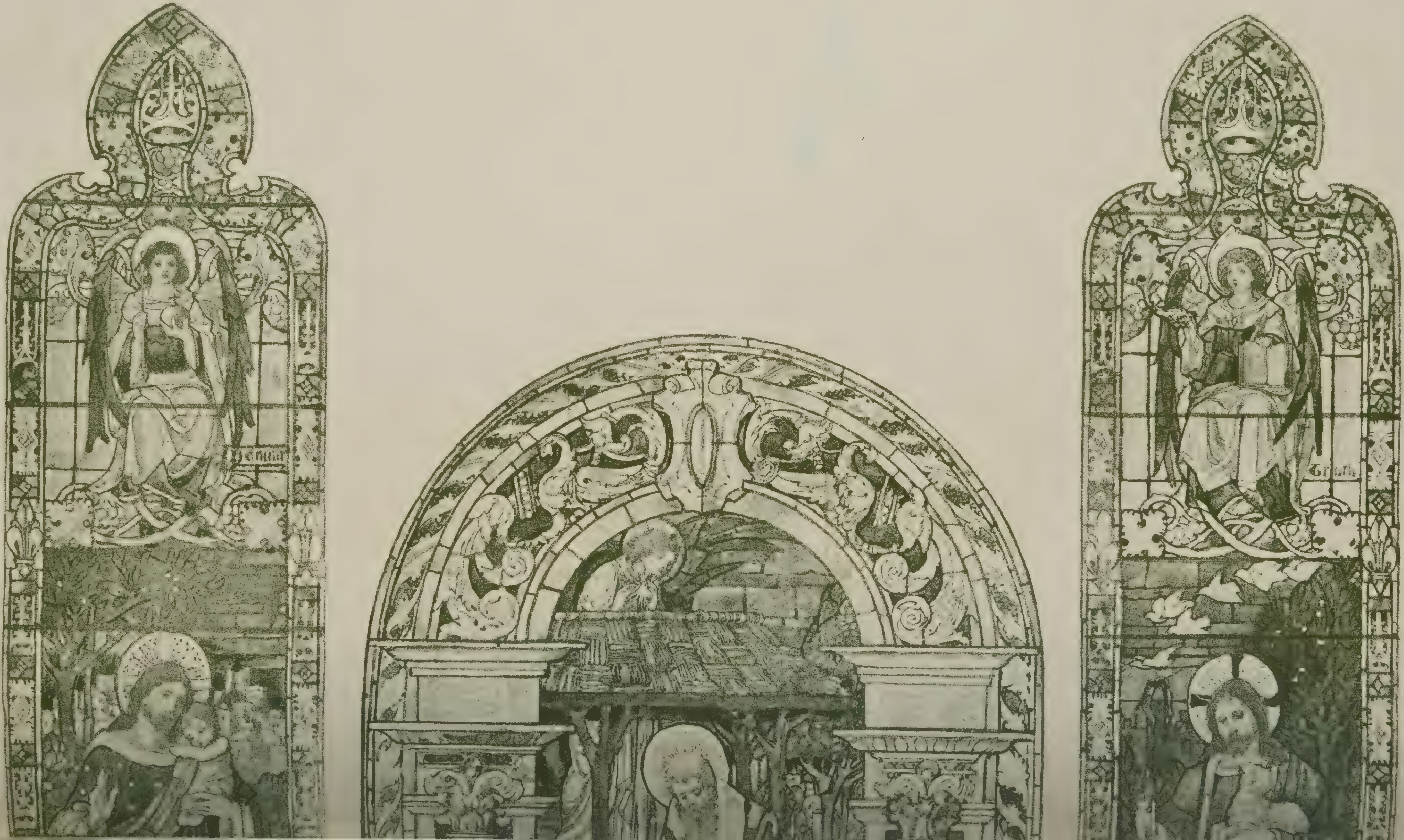
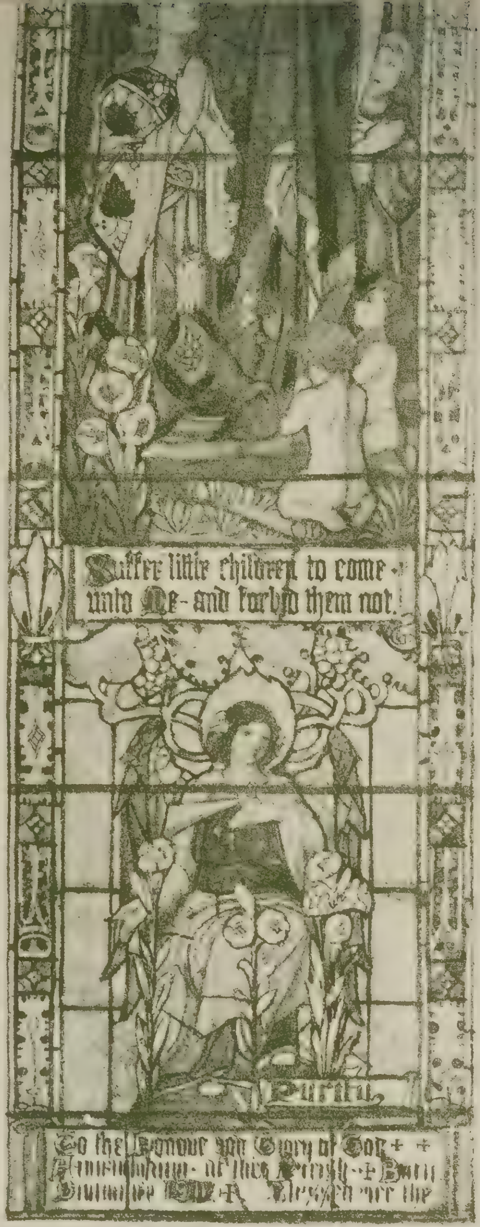
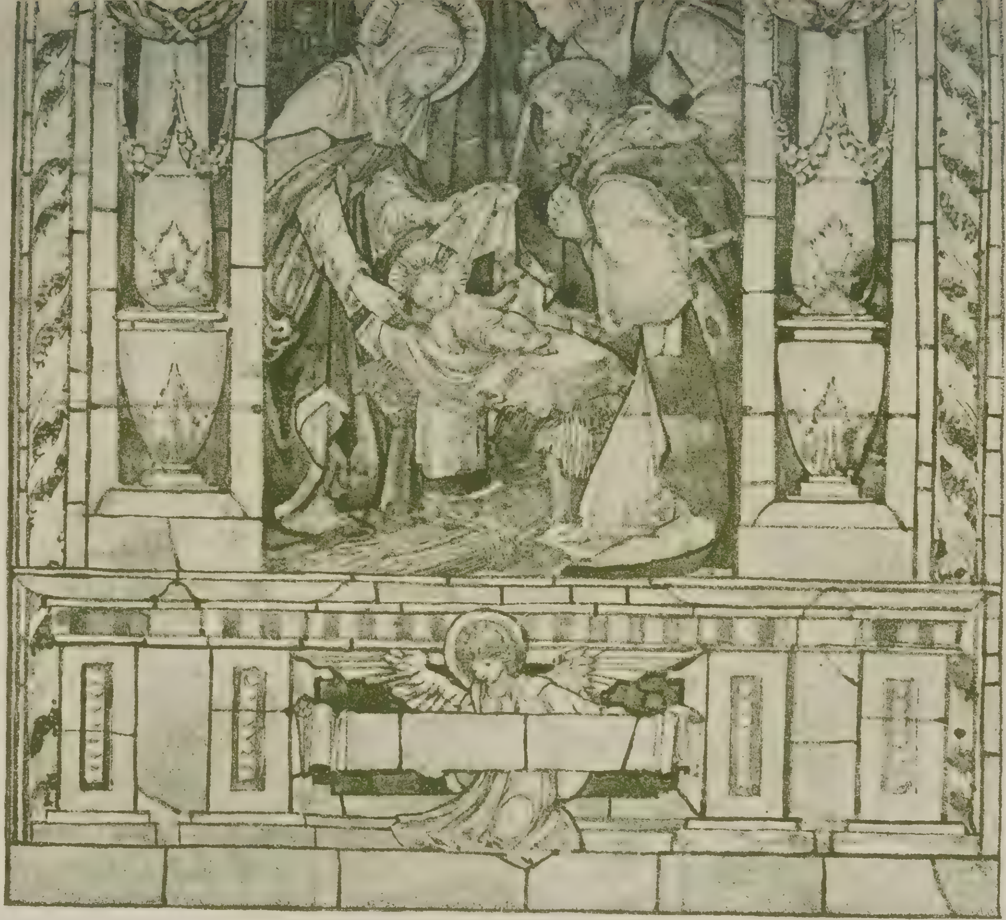

Truth

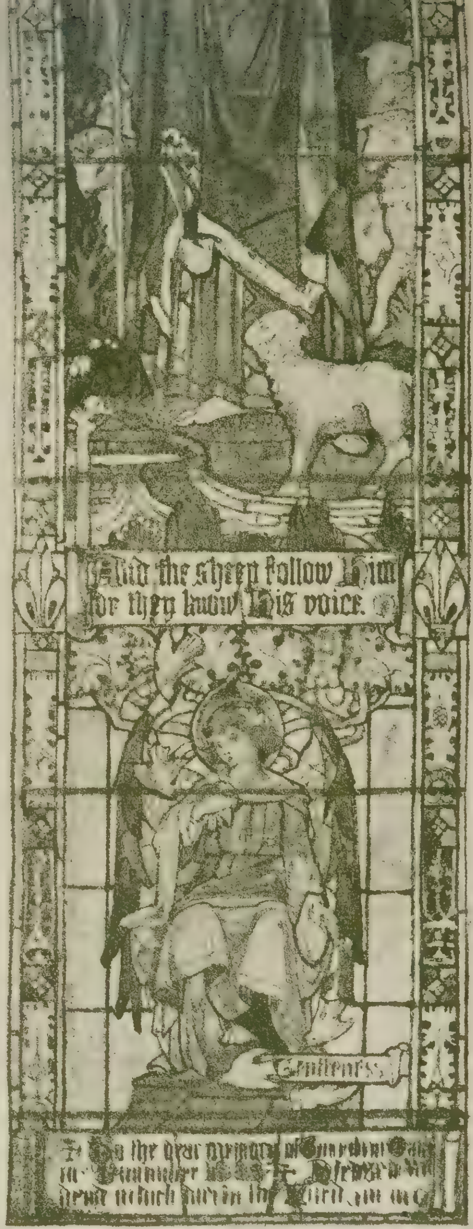

Suffer little children to come unto Me and forbid them not.
Purity



"THE NATIVITY."

DESIGN FOR STAINED GLASS BY Mr. ARTHUR A. ORR.

Executed by Mr. REUBEN BENNETT, Manchester.


And the sheep follow Him for they know His voice.
Gentleness

INK-PHOTO SPRAGUE & Co Ltd 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

Royal Academy Exhibition, 1911.

DESIGNS FOR STAINED GLASS BY MR. ARTHUR A. ORR.

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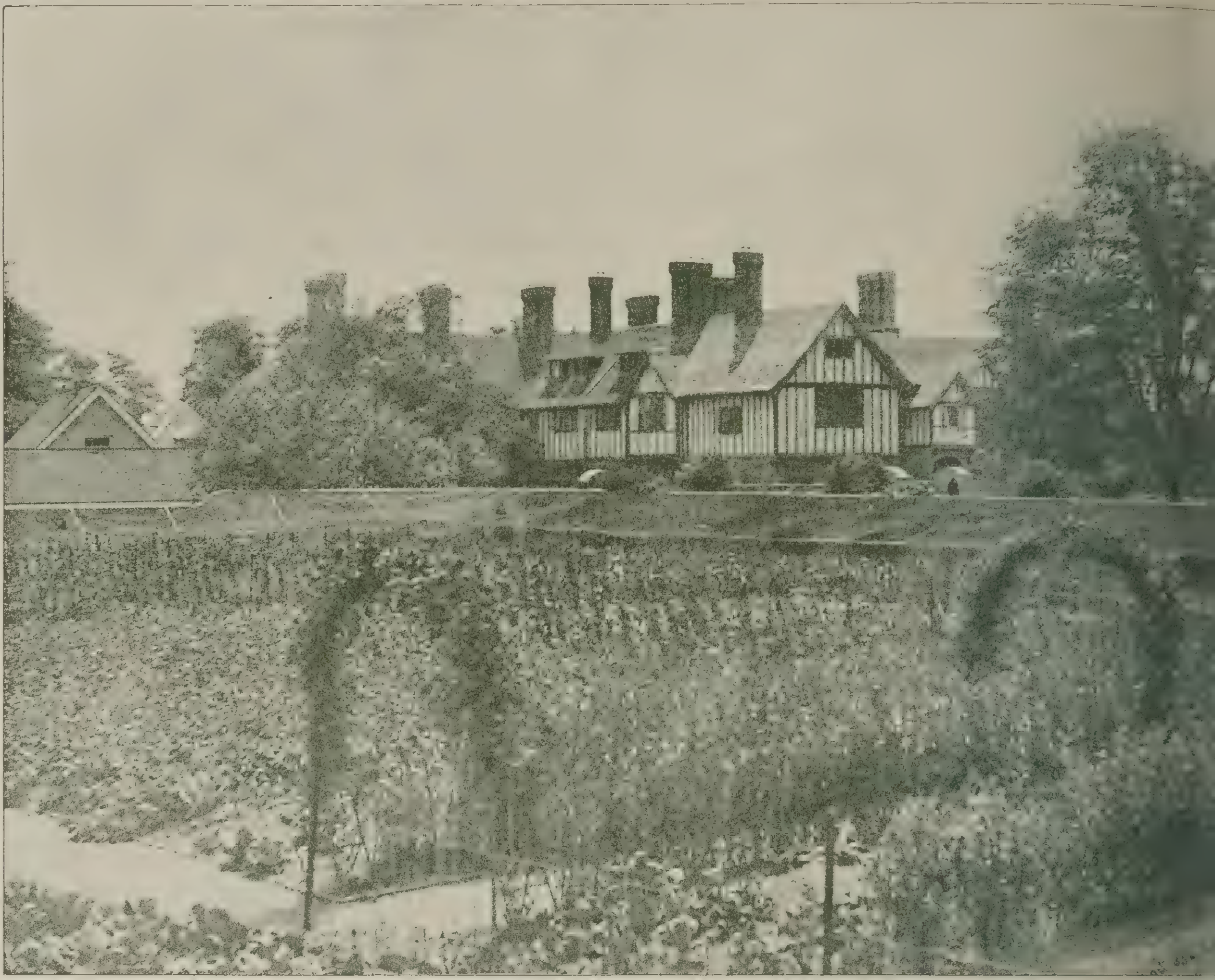
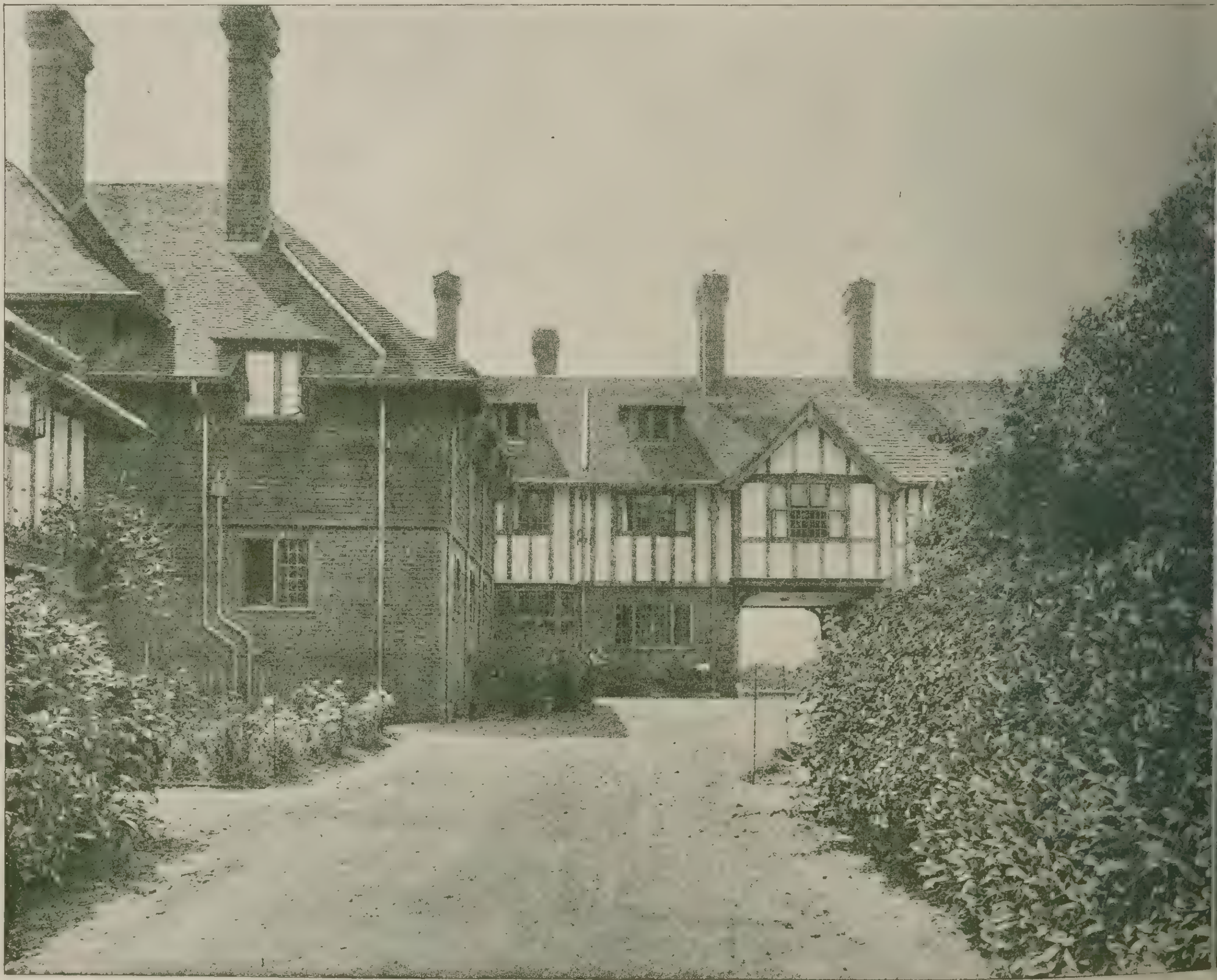


VIEW FROM THE KITCHEN GARDEN.



VIEW FROM BACK ENTRANCE.

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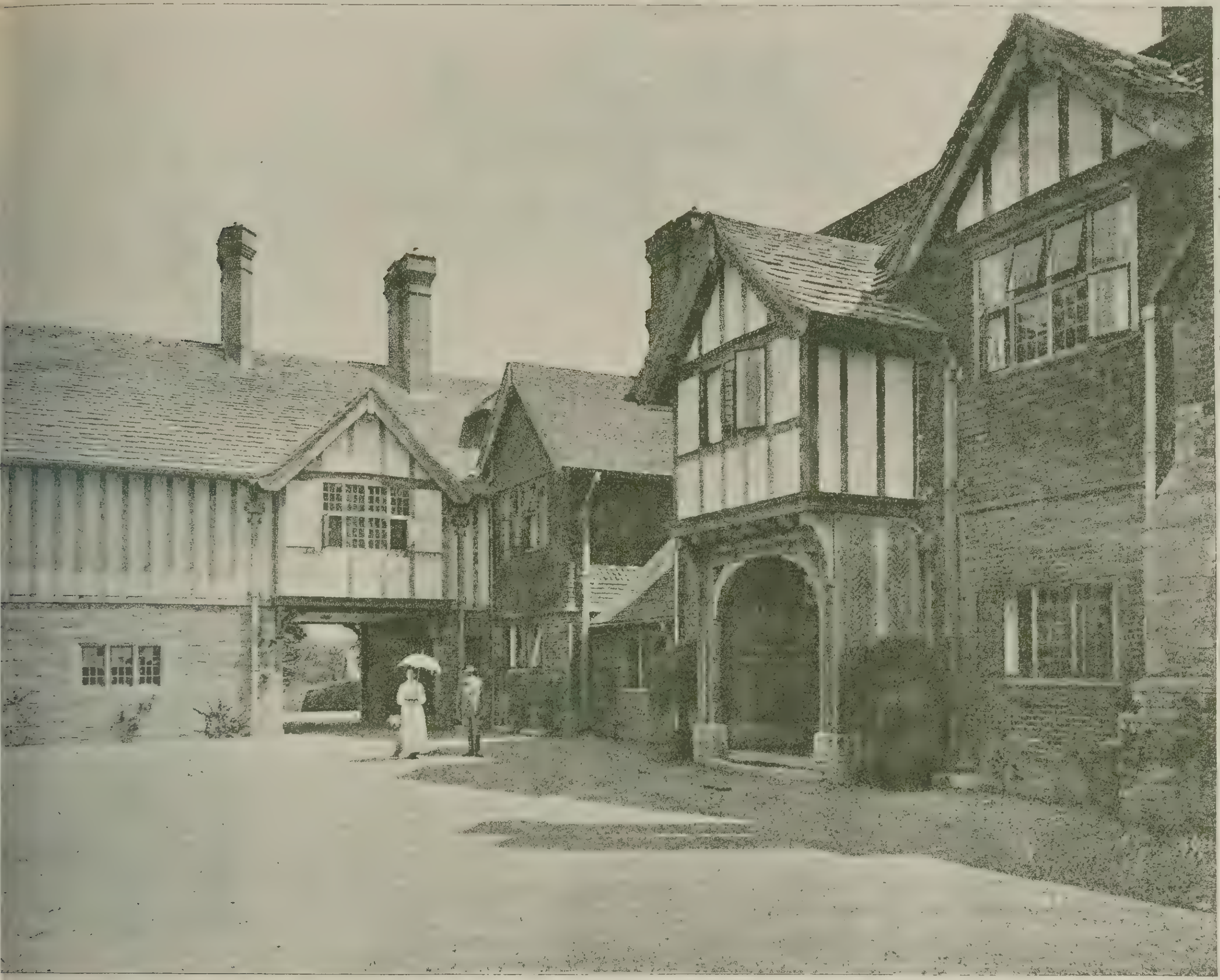
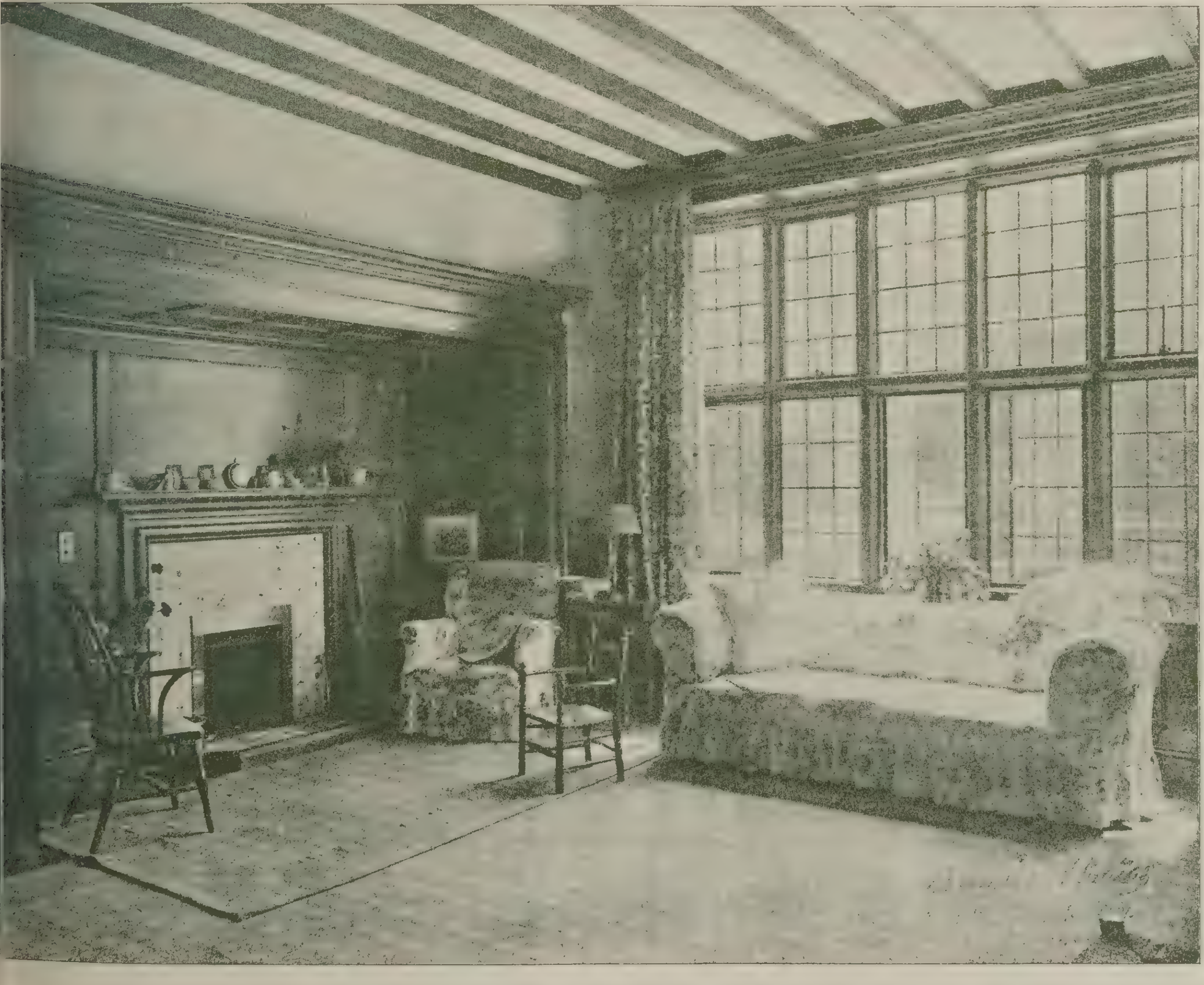


THE COURTYARD.



THE MORNING-ROOM.

"INK PHOTO" SPRAGUE & Cº Lᵀᴰ 4 & 5, EAST HARDING STREET FETTER LANE E.C.

SUSSEX.

Architects.

UNIVERSITY OF ILLINOIS.

The Architect.

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FORTHCOMING EVENTS.

Monday, November 13.

Architectural Association: Paper by Mr. J. B. Fulton, A.R.I.B.A., on "That the true hope of Architecture lies in the study of good modern work," at 7.30 P.M.

Tuesday, November 14.

Institution of Civil Engineers. Papers on "The Loch Leven Water-power Works," by Mr. A. H. Roberts, M.Inst.C.E., and "The Hydro-Electric Plant in the British Aluminium Company's Factory at Kinlochleven," by Mr. F. B. Sonnenschein, A.M.Inst.C.E., at 8 P.M.

Wednesday, November 15.

Northern Architectural Association: Opening meeting, presidential address by Mr. H. C. Charlewood, F.R.I.B.A., at 7.30 P.M.

Institute of Sanitary Engineers: Annual Dinner at the Holborn Restaurant at 7 P.M.

Thursday, November 16.

Society of Architects: Opening meeting; presidential address by Mr. George E. Bond, at 8 P.M.

Friday, November 17.

Illuminating Engineering Society: Report of Progress during the Vacation by Mr. L. Gaster, hon. secretary, and paper on "The Design of Motor Car Headlights," by Dr. H. R. B. Hickman.

XAMINATIONS AT THE ROYAL INSTITUTE.

NCE again the syllabus of the examinations of the Royal Institute of British Architects has been cast to the melting-pot and a new form evolved. Repetitions the process must be expected at greater or lesser tervals as fresh members take the place of those who ve acted for a time on the Board of Examiners or the oard of Architectural Education. Particularly from the tter body will there come reversals and upheavals of any isting order of things, for it is too much to expect that en of note, when they are appointed thereto for the press purpose of supervising the education of architecral students, will be content to sit still and quietly prove what has been done by their predecessors.

Men who have made their mark and come to the ont in architectural, as in every other walk of life, have ually done so in modern times by the exhibition of special ility in one or other direction; hence in any one notable lividual there is likely to be a preponderating inclination some one particular direction and an absence of an partial and comprehensive all-round view of things. pecially is this the case in matters artistic, and perhaps ove all in architecture, and herein lies the explanation the violent advocacy now of Gothic, now of Classic dition, by some of archæological correctness in design, others of freedom and originality even to the excesses *l'art nouveau*. Hence when fresh accessions of notable hitects to the Board of Architectural Education occur re are likely to obtrude fresh points of view.

Again, the practice of architecture is an occupation of y great complexity. It is, or should be, an art, a siness and a profession, and there will ever be differces of opinion amongst its practitioners as to which uld be the predominant element and to which should given the greatest importance in testing the qualificas of a student for the purpose of determining his fitness be regarded as a competent architect and a worthy mber of the Royal Institute.

In respect of the art of architecture, when we come draw up an actual scheme of examination we are conted by a sharp difference of opinion as to whether test applied to the student should be that of knowge or of ability, and some have gone so far as to that whilst it is perfectly easy to examine a candidate his knowledge of art, either historical or critical, ability artistic design cannot be judged or estimated, and refore examination in design should be omitted from syllabus of the Royal Institute.

With this extreme view we are unable to agree. The ission of design as a subject of the qualifying examination for an Associate would tend to imply that an architect might be properly qualified without possessing either knowledge or ability in artistic design, which even the objectors would scarcely be prepared to maintain; indeed, we might safely say, would be the last to suggest. Nor is there that difficulty in estimating the possession of ability to design that some would assert. It principally depends on the examiner. If he is a man of strong individuality, of violent antipathies, of deep prejudices, he will see along one line of thought only, and be unable to recognise merit which does not conform to his own preconceived ideals. But if he is a man of wide sympathies and broad views, as well as extensive knowledge, a critic rather than a partisan, he will be able to rightly judge merit and ability in artistic design in whatever form they may be manifested.

There is one other important point in the consideration of a student's artistic ability, and in our opinion it is the only real difficulty in testing the designing power of a candidate in an examination. The point is that there is a great difference between able designers in the amount of india-rubber they use and in the time they take to evolve a conception. Under the conditions of examination in design as they have hitherto existed at the Royal Institute, india-rubber has been almost an impossibility. Rapidity of draughtsmanship has been a primary essential. The man who could make an excellent design in a week has had no chance when he has been asked to turn out a full set of drawings in a couple of days. There has been no time for thought, still less for careful consideration and selection of the best solution of the problems set. The first idea has had to be followed and displayed with the utmost rapidity of draughtsmanship.

Given a capable examiner and sufficient time for the candidate, there does not seem to us any insuperable or even considerable difficulty in testing a candidate's ability to produce work of artistic merit. Such testing is done each year by the Hanging Committee of the Royal Academy and at the Ecole des Beaux-Arts. Why not at the Royal Institute of British Architects?

The principal difference between the most recent syllabus of the Institute examinations and those that have preceded it is that we now have introduced the encouragement and approval of specialisation by students of architecture. In a way this is really a reversion to the older practice of the Institute, even before the introduction of examinations, to recognise as fit and proper persons for membership the artist, the scholar, the man of business, and even the quantity surveyor. The examinations, however, have been practically the same for everyone, and

OLD HOUSES IN THE PIAZZA DEL PIANTO, ROME.—From a Sketch by Mr. LAURENCE DAVIES.

hence a minimum standard of attainment has been the necessary result. The artist has been required to know something about drains, the scientist to have some slight ability in design, but in neither case could the qualification be other than the minimum. The examinations have therefore favoured mediocrity.

The Board of Architectural Education having decided to recognise specialism, have done so thoroughly, and permits even candidates for the Intermediate examination to select special branches of knowledge or attainment. We are not altogether sure that in this they have not gone rather too far, and that it is altogether wise to enlarge the scope of this examination beyond the limits of what every architectural student ought to know. It must be remembered that the Intermediate is an examination that should be passed by every embryo architect during his pupilage, or at latest immediately on the expiration of his articles. Such students surely ought not to be allowed to choose whether they will be historians, mathematicians or designers. Nor is it desirable that an architect should be labelled as qualified without a knowledge of "Descriptive geometry, including the mensuration of simple plane and solid figures." The A.R.I.B.A. of the future will not necessarily be able to assist a mason or a bricklayer in a difficult piece of setting out. He will have to depend on the clerk of works or the builder's foreman for the solution by descriptive geometry of constantly recurring problems.

In the testimonies of study for the Intermediate there is at first sight but a small modification, but it is one fraught with very serious consequences. It is no longer necessary for a candidate for membership of the Institute to make any serious study of mediæval architecture, but only to give it so much superficial attention as may suffice for a chance question in a couple of papers which cover the whole ground of the "Principal styles and general history of architecture, and the purpose of architectural features in relation to the buildings in which they occur." Hence we may possibly have a race of British architects who when they are called upon to repair, restore or alter any of the thousands of mediæval buildings in our country will know nothing of Gothic architecture, and will repeat the treatment accorded by Wren and the classicists of the eighteenth century.

The outstanding feature of the change in the Fi
examination is the prominence now given to design. T
present members of the Board of Architectural Educat
certainly do not hold the view that it is not possible
examine in design. Every candidate must submit fo
designs as testimonies of study; he must make a design
the examination room; he may, as his obligatory thes
submit another design, and thus 900 marks out of a ma
mum 1,200 for the whole examination may be obtained
design alone.

Professor Reginald Blomfield, in his explanat
"Note on Recent Changes in the R.I.B.A. Exami
tions" that appears in the Journal, deplores the dis
pearance of the "Student-scholar-architect." The lat
revision of the Institute examination syllabus will,
fear, complete his extinction. Students who must att
a considerable degree of proficiency in design will not of
be tempted to select either history or science as the subj
of their thesis.

NOTES AND COMMENTS.

The current number of the *Architectural Associat*
Journal commences the record of a week in C
and neighbourhood spent by a party of members of
Camera, Sketch and Debate Club, which, combined w
Mr. H. H. Hill's recent lecture on this year's excursior
the Loire Valley, shows that some members of the Asso
tion do not agree with the view of the new Director
Education, as appears from the Brown Book, that Frer
architecture should be tabooed by students.

Professor Arnold's views on smoke could hardly exp
to escape criticism and opposition, and Dr. Owen has ta
up the cudgels against them; but we do not think v
successfully. We did not gather that Professor Arnold
jected to any amount of reduction of smoke from bo
furnaces and domestic fires, but deprecated legislative
other interference with metallurgical smoke. Dr. Ov
admits that he has no special knowledge of metallurg
furnaces.

The question of Portinscale bridge stands adjourned
a local inquiry, in which no architect or engineer is to
allowed to take part, and the witnesses must be ra

payers in the county of Cumberland. Whilst there are still advocates on the County Council of the destruction of the old bridge, it appears that the Highways Committee are prepared to let the old one stand for people to look at and build another for use.

Connemara Green Marble is to be exploited by a new company with a capital of £100,000 (if it floats), and we should be pleased to see the mineral resources of Ireland in stone and marble still further developed by the aid of more capital and better business methods than have been seen in the past. Many architects are aware that there is much excellent stone and many beautiful marbles in Ireland, but it is almost hopeless to expect to get them supplied with any promptitude or even at all.

This month's issue of *The Connoisseur* contains little of special architectural interest, but there are, as always, excellently illustrated articles on various byways of art. Winterhalter and his paintings of the days of the crinoline, eighteenth century variegated pottery ware, the tapestries of France as illustrated by examples from Sir John Murray Scott's collection, Viotti the violinist, a second instalment of Mr. Peacock's articles on Albrecht Dürer woodcuts, are the subjects of the principal articles, whilst the coloured plates include portraits of Queen Elizabeth and Darnley of Lennox; Constable's Water Lane, Dedham; a silhouette portrait of a lady on plaster.

A writer in the *North Middlesex Chronicle* makes a sensible suggestion for the prevention of the ever-recurring cracks and settlements that trouble the suburban householder after a dry summer. The basis for the suggestion is that the cracks occur (in London suburbs) through the drying of the clay which has become soaked by the rains of autumn, winter, and spring. Therefore, the preventive is to keep the clay dry, and the suggestion is "Keep your front garden as dry as possible during the wet weather; then when the drought comes there will be no shrinkage of the clay beneath." And a concrete pavement next the walls is the means recommended for keeping the clay dry.

The subject of cheap churches has been recently ventilated in the columns of the *Manchester Guardian*, and the possibility of building at a cost of about £7 per sitting has been strenuously advocated by Sir William Houldsworth as if it were an always desirable thing. Of course it is possible to build a good and serviceable church at this figure, but the clergy and their congregations usually desire something better. A writer in the *Manchester Guardian* puts the case in a nutshell in these words, "The whole success of the attempt to provide really cheap churches depends on the brains of the architect. That is the one point where there must be no economy." He further gives in detail the methods by which the problem has been solved in several instances. "First, the architect has in every case taken particular pains to think out a scheme for the particular church which should make the most of the site at the least cost. Too often the cost of a church is increased because the plan, though excellent in itself, is not well adapted to the conditions of the site or the requirements of the parish. Then it has to be modified under conditions which are bound to be expensive. Secondly, great care has been used in the selection of material. The use of a local stone or brick will often make considerable difference in the total bill, and if the building is designed with special regard to that material nothing will be lost in the final effect. Thirdly, all ornamentation has been reduced to the least possible, consistent with a good appearance. As, however, much modern ornamentation in churches tends to be purely conventional, a well-proportioned church often gains in dignity of appearance from the absence of what we may perhaps be allowed to call builder's ornamentation."

The destruction by fire of St. George's Church, Leicester, has formed the basis of a correspondence in *The Guardian* on the too-prevalent foolish parsimony of churchwardens in under-insuring the churches for which they are responsible; and Archdeacon Arbuthnot, of Coventry, points the moral by stating the fact that in his archdeaconry of 120 parishes there are seven churches insured for £500 or less and five more for £1,000. He does not say whether, as is probable, the policies in these cases are "subject to average," but even if not there is no doubt that the churchwardens, on behalf of the parishioners, are underwriting the risk. It is only the comparatively long odds against a fire occurring in a church that has encouraged the pernicious custom of under-insurance, but it should be remembered that if the contingency is remote the risk of a total loss is great and almost a certainty.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

We are not surprised to find that the majority of examples that have been contributed by our students of a pulpit constructed prior to A.D. 1800 have been of Renaissance work more or less pure. The number of mediæval examples that remain in this country is, unfortunately, but small, whilst of post-Reformation date there are plenty.

"Malaya" has drawn the pulpit in All Saints Church, Pavement, York, a richly-carved oak example, with a canopy or sounding-board evidently contemporaneous, and bearing the date "Anno 1634." The general form closely follows that of late pre-Reformation pulpits, and the influence of tradition is also shown in the use of cusping and in the form of the angle posts, though the character of the detail as a whole is naturally of the bastard Renaissance of the period. Our contributor's work is well done, but would have been better with a larger scale for the general drawings and full size for the mouldings.

Mr. Irwin Walker has selected a Gothic example, and a very fine one, the stone pulpit and stair in the refectory of the monastic buildings attached to Chester Cathedral. This is thirteenth century work of rather late Early English character. Mr. Walker's work has suffered both as a record and as a study from inability to clearly distinguish the jointing of stonework and the details of moulding and carving by reason of the thick coating of whitewash with which the stonework has been covered. He should in future, when drawing Gothic work, use a thicker line, and always, wherever possible, carefully measure and show the jointing.

"Jock" has found a very simple Jacobean pulpit in the church of Bolton Percy, near York, which, though scarcely exceeding the limits of village carpentry, is well proportioned and artistic in feeling. "Jock" has done well to adopt the large scale of one-quarter full size, but should have completed his work with sections of the simple and few mouldings and sinkings that outline the detail of the design.

Mr. E. H. Gibson sends measured drawings of the pulpit in Holy Trinity Church, Boar Lane, Leeds. This is an interesting example of eighteenth-century work with a good sounding-board, and is admirably drawn by our contributor.

"Alpha" has found his example of a pulpit in the chapel of the Trinity House, Newcastle-on-Tyne, which was built in 1636. This is of a very good design for the date, and has been well drawn by "Alpha."

We award this month prizes of one guinea each to Mr. E. H. Gibson and "Alpha."

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The first general meeting of the seventy-seventh session of the Royal Institute was held on Monday, November 6, at 9 Conduit Street, W., Mr. Leonard Stokes, President, in the chair.

After some formal business Mr. Stokes gave the following

Opening Address.

Since I had the honour of addressing you last year we have passed through all the glories of a Coronation, and long may our beloved patron George V. live to wear the crown, placed upon his head amidst so much rejoicing, and surrounded by so much pomp and splendour! Such an occasion naturally gives great opportunities to the architect and decorator, and I think we may congratulate ourselves upon the fine results achieved in many cases. It is, no doubt, to be regretted that more use was not made of our services; and that, when they were called in, our schemes were not more completely carried out. Nevertheless, the best results along the great processional route, and elsewhere, were produced undoubtedly—as might have been expected—by our noble selves and not by the commercial firms too often in evidence. It would be invidious to mention individual cases, but I should like to place it on record that the most effective, pleasing, and characteristic of the many great efforts to adorn our streets and buildings were those produced by architects. The only case of misplaced architectural genius that I noticed was the annexe to Westminster Abbey, erected "in the Gothic style" at large expense. Surely, the culminating point of the great procession along an otherwise gaily decorated route should have been something better than a mere plaster sham—supposed, no doubt, to be in harmony with the Abbey, but really a very poor compliment to it. One would have thought a fine marquee in gold and gorgeous colours surrounded by Venetian masts carrying flags, banners, and pennants much more suitable to the occasion than an impertinent imitation Gothic building.

Closely bound up with this same subject is the unfortunate *impasse* connected with the completion of the great processional road through St. James's Park. This road is in itself a fine thing, but how it came about that it has no proper opening into Trafalgar Square is quite incomprehensible, and, I fear, is another illustration of the hopeless manner in which our public improvements are invariably mismanaged. In this case a processional road starts from a palace, and leaves off, if you please, with a flourish of trumpets behind a row of houses which practically block its further progress. And when the houses have been dodged, further progress is effectually barred by an underground convenience! I should have thought that the possibility of getting properly and effectively into Trafalgar Square would have been the first thing to consider by those responsible for the scheme, instead of the last, and it now looks, I fear, practically impossible ever to make a really good finish towards the Square without spending a further huge sum of money, which might have been avoided if the scheme had been properly thought out from the first, by all three of the large public bodies really interested in the scheme, instead of by one alone, which one went to work apparently without any regard to the other two until the last moment, when, alas! it was too late. Architects are, unfortunately, too often forced, by the near-sighted policy of their employers, into designing incomplete schemes of this sort, and get all the blame for so doing, whereas they, of course, can only do as they are bid on the land at their disposal.

This brings us once more face to face with the fact that there really should be one authority responsible for the whole of London, and not several as at present. London, with its seven millions of people, is as important, and probably as difficult, to govern as any European country; and instead of its City Corporation, its London County Council, and its two dozen or so of borough councils, with the Office of Works and the Woods and Forests thrown in, one would have thought that at least one Minister of the Crown—aided, perhaps, by a committee of experts—would have found work enough very profitably to engage his time in looking after London, and seeing that its affairs were properly managed.

Mr. Waterhouse last session read us a most interesting paper on this subject, but I fear his suggestion of a chief architect acting with the architect from each borough council would probably cause friction and confusion, and I would much prefer to take, say, H.M. First Commissioner of Works, and—after divesting him of many of the duties he now performs—make him responsible for the proper domestic government of London. He should, of course, have a good deal of power, and some knowledge and taste. There are, I assure you, grave reasons for some change, even from an architectural standpoint; take, for example, our street improvements. Most of us can remember when Piccadilly Circus was improved—into a hopeless muddle—and it is now proposed again to alter it, and make it very much what some of us of this Institute suggested at the time! But this, of course, now can only be done at a very much greater cost. Shaftesbury Avenue and Charing Cross Road are each wide thoroughfares, but both hopelessly laid out from a town planning point of view. Kingsway is quite out of scale with its neighbourhood, and has, as I told you once before, tw ends at one end, and no proper end at all at the other! Th alterations at the Marble Arch have perhaps relieved th traffic but spoilt the appearance of the place, and the slic of Green Park that was thrown into the road by Hyde Par Corner has done no good whatever—though I believe it wa done to please the police—and the ordinary rules of the roa are not in force now at this spot, which will lead befor long, I feel sure, to some horrible accident.

If we go a little further back still, what a great opportunity was missed when the land behind the Albert Hall wa dealt with! This is now covered largely by public buildings and yet none of them look well placed, neither do they tell a a group, as might have been the case had the land been properly laid out, as it certainly would have been in any othe country but ours. This all shows that such work should no be left to amateur committees or corporations, driven thi way and that, first by one consideration and then by another but should be in the hands, as I have suggested, of, say, Minister of the Crown, who should advise, control, and direc the various authorities now responsible for the government o London, and see that they worked together for the good o London as a whole, and that their various schemes and plan formed part of a comprehensive whole, arranged with du regard to the future.

Surely, some general scheme for the improvement an development of London in the future should be at onc got out, and might be taken in hand by the suggeste Minister. In Rome we were recently shown a plan whic is to be carried out during the next twenty years, and al the property so required has been scheduled and the pric fixed, and any improvements on it can only be made at th owner's risk, knowing that it may be wanted at any tim during the next twenty years. We, however, do not appea to realise the importance of a comprehensive scheme, an the only people who do know, to some extent, that the publi really likes well laid out and well designed buildings are thos who run Exhibitions such as the White City. When wil our Corporations learn the same lesson, and realise the fac that there is money in it too?

Take a concrete example which has been exercising some o us a good deal lately, viz. the Corporation of London Bridge Bill. This Bill was promoted by the Corporation of London and has now become an Act of Parliament, and provides fo rebuilding Southwark Bridge and for building a new bridge to be called St. Paul's Bridge close to it. Now, as we all know that the traffic in the City is already about as congested as it well can be, so what it will be like when fresh streams of traffic are created flowing to and from these two great new bridges heaven only knows! It would seem a wiser policy to try rather to coax traffic away from the heart of the City instead of into it, particularly as the enormous cost of land tends very much to prevent improvements there being carried out on any very comprehensive scale. But the City has money to spend on bridges, so spend it it must, and in the City precincts, too, quite regardless of whether it might not be far better to go to work either higher up or even lower down the river. A Minister of the Crown might help us here.

One last word on St. Paul's Bridge. This Institute has for years been agitating, as you know, for proper architectural consideration for this bridge from the outset, and the Corporation turned a deaf ear to us. Parliament, however, came to our help, and at the eleventh hour three well-known architects were called in to advise the Corporation. This was what we had been working for all along, and I think we should congratulate ourselves on having got what we asked for in the end. That some of us may have been disappointed at the form the advice took is not the point. The lay-out received architectural consideration before the Corporation got its Bill; and now we can only devoutly hope that if both bridges are gone on with the Corporation will take such steps as will insure the designs of these two great bridges being as fine as it is possible to make them.

I should like to explain, however, the reason why we architects seem to be somewhat divided on the subject of St. Paul's Bridge. The reason is that there are two very different ways of looking at the subject. The first may be said to be the aspect *of* the bridge itself, and the second the aspect *from* the bridge. Unfortunately, it is not easy to combine the two, and hence some of us took the view that the first thing to consider—apart from the great traffic problem—was what we saw from the bridge, and others what we saw when we looked at the bridge itself. Doctors are allowed to differ, so I must claim for our profession the same privilege. If not too late, however, I should like even now to suggest that Southwark Bridge might be rebuilt first, so that we may see what effect it has upon the traffic. This course would have the further advantage of preventing the river and its vast floating traffic from being obstructed by works to two bridges so close together at the same time.

I have already suggested that my proposed new authority might be the First Commissioner of Works after his present duties had been lightened. These I would lighten by very largely reducing the size and output of the huge architectural mill now running under his control. This mill turns out work just now of the annual value of £1,195,410, which large sum is spent on palaces, law courts, Government offices, schools, labour exchanges, museums, post offices, and telephone exchanges, &c., &c., and on the maintenance of similar buildings over which the Office of Works has control.

Now, it will be seen that the work turned out is very varied in its nature, but, unfortunately, very uniform in its architectural character. I want to be strictly fair in what I say, but I honestly think that the bulk of the work produced by the Office of Works is poor from an architectural standpoint. Some of it has been better of late, I admit, but let us take post offices as their particular speciality. These may be seen in our towns all over the land, and are generally, as far as I have seen, pretentious and costly, and devoid of those good qualities essential in really fine work, and their other buildings are very much the same.

So much for the quality of the work; now for the cost of production. The architectural staff which produces this work receives £71,849 per annum, or just about 6¼ per cent. on the outlay, for salaries alone, without any allowance for rent, rates, taxes, pensions, fees to specialists, cleaning, lighting, heating, porters, messengers, and various other sundries. Five or six years ago the salaries amounted to only about 3½ per cent. on the amount expended, which was then about £400,000, or one-third of what it is now. Fifteen or sixteen years ago only about £250,000 was spent per annum, and the cost of architectural administration was only about 2 per cent. These figures seem to show that the larger the office is the more expensive it becomes per cent. to administer.

I maintain, therefore, that, as the work now produced by the Office of Works is not very good and not very cheap, the bulk of it might with advantage be put out to independent architects to be better done at a smaller cost, and so relieve the First Commissioner of Works very considerably. This you will see has the advantage of killing two birds with one stone, for we thus enable the First Commissioner to do work which we want him to do, and we free him from the work which we would much rather he did not do.

You must not think that I have any particular grudge against the Office of Works, or that I am finding fault with he many good friends I have on the architectural staff there, for my remarks are directed against all large public bodies who attempt to do their own architecture. The recent Conress at Rome passed a resolution to the effect that "Architectural works intended for the State, Municipalities, or ther public bodies should only be entrusted to qualified architects after competition or otherwise." It will thus be seen that the architects all over the world are in accord, and n order to further prove the case I have looked up the cost—the quality speaks for itself—of the architectural work roduced by the Admiralty and the War Office. Both of hese authorities run large architectural departments, spendng in round figures about a million and a half per annum ach, the former at a cost of about 7 per cent. and the latter bout 10 per cent. in salaries alone, and in neither case, of ourse, including the cost of rent, rates, pensions, cleaning, ghting, heating, &c., which, if added, would probably aise the cost by about another 1 or 1½ per cent.

I should like to have been able to include the London ounty Council in my list, but I can find no published figures n the subject. I am told, however, on good authority, that he Architectural Department of this body is run very onomically at present, greatly to the credit of the very able entleman at its head. When, however, in the course of time e retires, I venture to predict that no one else will be found ith the same capacity for work and power of organisation; onsequently, confusion will arise, and the cost of production o up to something like that in the three other cases I have uoted. And the more this department undertakes now, the reater will be the fall then. For it stands to reason that ne man cannot have time to design all the work produced n a great office of this nature, and if he has not time to do t himself it must be done by others. He is, therefore, at the ercy of his staff, and if at the mercy of his staff, why not at the mercy of the outside architect? In the case of the London County Council, their architect is even called the Superintending Architect: his duty should, therefore, clearly be confined to superintending the work, not of a staff, for then it becomes his own work, but of those architects who work in London under his jurisdiction; and this principle applies equally to the architects of the Office of Works, the Admiralty, and the War Office, and other large public and municipal offices, for all these gentlemen, if they attempt to design any work themselves, must neglect their staff, and if they leave it to their staff it must be good, bad, or indifferent, according to the staff, for one man even cannot control a staff, the salaries of which at the Office of Works, for example, amount to something like £1,400 per week, or perhaps as much as 99 per cent. of our practising architects pay to their staff during a whole year instead of in one week.

In these days of free trade and buying in the cheapest market, why should public offices be given preferential treatment? If there are a number of professional men of high standing prepared to accept a recognised scale of fees, why should these huge cormorants receive about half as much again as the ordinary rate? Hen-roosts, I know, are in demand just now, and I venture to suggest that, without robbing anyone at all, thousands of pounds might be saved annually from the unnecessary expenditure now involved in running these large architectural mills. The three which I have named together spend annually in round figures about four and a half millions on building works, at an average cost of about 9½ per cent., or 4½ per cent. more than the recognised payment for such work. This equals rather over £200,000 a year paid unnecessarily for the privilege of running these departments. It may be contended, however, that these departments are necessary, as there are a number of works like painting park railings, mending broken windows, &c., that must be looked after; but a staff of surveyors could do this very well without mixing up architecture in the matter at all, and this, I imagine, is what was intended when the Office of Works was established.

My figures may not, of course, be quite correct—figures never are—and those who understand them better than I do may be able to put a much better complexion on them. I can only say that I have worked on the official published figures, and these, as a rule, are carefully and takingly prepared with a view to their being swallowed by the British taxpayer, and I hope I have not much overstated the case.

Again, it must be only too obvious that a large Government office is not a likely place for the production of various kinds of architectural work, either well or cheaply, for the originating is generally done by understrappers, and sent up to the higher grades for approval or otherwise—a sort of Class of Design—and I have heard of as many as nine separate designs having been made for one building before such approval was obtained. In other professions, does one man profess to be able to specialise in all subjects? Are there not landscape painters, and portrait painters, and some sculptors who work best in low relief and others in the round? Do not some lawyers go in for criminal work and others for the probate and divorce? Are there not doctors who cut at our insides and others who cut our throats? And even with us some architects do church work and others domestic work. But these public offices, as far as I know, claim to be able to do everything, from a palace to a prison, and no doubt they can, and equally well, too!

I have already referred to the ninth International Congress recently held at Rome, and to the resolution passed there respecting architectural work intended for the State and municipal bodies being entrusted to non-official architects only. A number of other resolutions were also passed, but perhaps the following are the most interesting, viz.:

(1) "That the right to use the title of architect should be reserved to those who have obtained it as a result of a proper examination passed after an artistic, technical, and scientific education."

(2) "That the title of architect should be placed in the same rank as the title Master of Arts, Doctor of Medicine, &c."

These two resolutions are particularly interesting to us just now, for, as you know, this question has been before the Institute as long as I can remember, and it may help us to know what other architects think on the same subject. We, as you know, have been working towards these ends for some time past, and as a preliminary step have created a new class of members called Licentiates, nearly two thousand of whom have already joined our ranks. With the object, too, of organising the profession—with the sanction of Parliament—into a strong, united, disciplined, and protected body, negotiations have been proceeding between this Institute and the Society of Architects, it being felt that two Kings in Brentford were hardly necessary, and that together we should be much more powerful than working independently. A number of meetings were held early in the year, as you are aware, and the general principles and a number of the details were satisfactorily agreed upon. Unfortunately—perhaps through my own fault—we got on rather faster than our legal advisers approved of, and we were brought up by finding that we had perhaps exceeded the powers we possess under our existing charter and by-laws. This was rather a shock to some of us, but as we had gone so far, we felt that in justice to ourselves and to the Society of Architects, we could not do otherwise than make good the mistakes made. Your Council has therefore been considering a revised charter and by-laws which will enable the two bodies to unite under terms I think advantageous to both parties. This charter and by-laws will, I hope, be very shortly laid before you, and I trust you will pass them, not, of course, without due consideration and discussion, but without forgetting what has already taken place. For many reasons it seems to me obvious that the two Societies should unite, but the reason that will perhaps appeal most to our only too human natures is the fact that by building up and increasing the power and influence of this Institute we are building up and increasing our individual power and influence. For the fact of belonging to a powerful body strengthens each of us, and makes us more confident when dealing with the many difficulties that abound in our multifarious duties.

If this address should happen to be read in the provinces, I hope those interested in the good of the profession will endeavour to make as many of their *confrères* as possible join our ranks, and so still further help to build up a really powerful and representative body. Another way in which our internal economy might be strengthened would be by a number of our Associates who have been Associates for years becoming Fellows. They are, in a number of cases, highly qualified in every way to become Fellows, and I hope they will consider the advisability of doing so.

It is a matter for congratulation, I think, that an architect has been associated with a sculptor in connection with the King Edward Memorial. The ideal method, no doubt, would be for one man to do the whole thing, but until our sculptors take a little more trouble to ground themselves in architectural matters, the only course I can see that will insure our monuments being satisfactory is to associate an architect with the sculptor: the custom hitherto too prevalent of leaving the sculptor to produce his own so-called architecture, or to get some compliant ghost to do it for him, is most unsatisfactory.

You will be glad to hear that there is now an immediate prospect of something in the nature of a British School being established in Rome, such school to embrace architecture, painting, sculpture, and archæology. Nothing, however, very definite has been settled, but there are prospects that, aided by private benefactors, helped by the Commissioners of the Exhibition of 1851, and backed up by the Royal Academy, the Royal Society of British Sculptors, and ourselves, a school will be shortly opened in Rome. Scholarships connected with it will be established, I anticipate, by this Institute with funds lately left us under the Jarvis bequest, and I think I am at liberty to say that the Commissioners of the Exhibition of 1851 will probably also give at least one scholarship each year to architecture, painting, and sculpture, so that with students who we hope may be able to attend this school, either privately or encouraged by the universities and schools about the country, a good school should be got together; and in such an appropriate centre for study as Rome, where most of the other nations have schools, we British subjects should be able to offer our students the means of completing their studies at a much higher level than has hitherto been the case. For it must be remembered that if we architects are to hold up our heads with any degree of success we must have something in them, otherwise the public, which is very quick at finding out impostors, will go back to their old friend the jerry-builder, leaving us to pine in a well-deserved obscurity.

Sir Robert Hunter, C.B., proposed a vote of thanks to Mr. Leonard Stokes for his very able and humorous paper. There was one feature of that paper, he said, which they could not expect him to fall down in admiration of at a moment's notice—viz. the proposal that the Government's architectural work should be thrown open. It would hardly become him as a Civil Servant to rejoice in the work of his colleagues being thrown over. Probably the Treasury would be able to give some explanation of the figures quoted by Mr. Stokes, which would put a different aspect on the matter. He believed that a great bulk of the duties of the Office of Works consisted in the supplying of post offices. It would ill become him to pass remarks about the elevations of those post offices, but he felt sure no one would suggest that the construction was other than sound and good; and he also believed that they were suited for their purpose. It would, he heartily agreed, be a very valuable thing for some controlling influence to supervise the execution of so-called improvements in London. It always struck him that the great difference between London and Paris was that while in London they had fine buildings and splendid open spaces there was a great absence of broad effects to catch the eye as there were at every turn in Paris. In London when they did get broad effects they seemed unable to keep them. For instance, the whole route from St. James's Park to Regent's Park was originally of one design—at any rate it was harmonious. But now it was neither one thing nor the other. The Office of Woods and Forests had allowed the line of buildings to be broken into in a heterogeneous way, and there was now no line which gratified the eye. Piccadilly Circus at the bottom was a space which could not be said to be void, but which was certainly without form. Admittedly there were difficulties in a city like London. The enormous growth in the value of the land afforded a continual incentive to put more buildings on a good site and get more and more money out of it. That tendency must run counter to a desire to carry out an harmonious plan. There existed also that intense feeling of individualism which resented any hard-and-fast control by a central authority. But the sovereign remedy for all architectural ills lay in the growth of public opinion. Public opinion as to matters of beauty on a large scale was of very recent growth. Hitherto in any question in which considerations of beauty and symmetry came in the general attitude had been that it was very nice to have a fine building or a fine street, but that if there was any question of money all other considerations must go to the wall. That some inroad was being made on that feeling there were many signs, including the recent controversy over St. Paul's Bridge. Whatever the result of that controversy might be they had this gratification, that Parliament had directed that the artistic and æsthetic point of view should be considered. He would venture to congratulate the audience upon the growing importance of their profession. Of recent years there had been a bigger general feeling that persons should take some interest in getting good houses and even good offices than there was some time ago. They had before them the whole subject of town planning, which was a growth of yesterday but was now a matter of importance. The attempts to produce something a little better than they had been accustomed to in the shape of garden cities and suburbs showed that there was a great future before them. It might be that there had been recently some check to building, but he could not help believing that in the future the architect would be the right-hand man to every local authority and that he would be called in to lay out and plan every collection of human dwellings of any magnitude, and that he would co-operate with the engineer and the medical officer. Such spirited and suggestive papers as they had heard that night would greatly aid towards that movement.

Mr. Irving K. Pond, President of the American Institute of Architects, said it was a great honour and pleasure for him, on behalf of the sister institute and himself, to second the vote of thanks to Mr. Stokes. The address had given him so much to think about and talk about that he could keep the audience longer than they might expect. He felt it a great pleasure to speak in that room, where there was a community of speech and interest. At the recent International Congress in Rome they never knew whether they were being understood or not. While listening to the presidential address that night it had been brought home forcibly to him that the mother country and the child have a community of speech, of thought, and of ideal. The same problems as confronted the profession in this country confronted them in America. In many of the larger American cities there was a diversity of interests which made development almost impossible. Concerning the proposed establishment of a school in Rome there must be, as in the case of the proposed St. Paul's Bridge, two points of view, and there might be a division of opinion among the members. What was the school to bring them? English architects had traditions, and he could not blame them because these were followed. But he did blame his own confrères for being still bound in their swaddling clothes. They began to design in Classic when young, and they design in Classic still. In America they were far more tied to Classic tradition than architects were in this country. In England they already had a culture of their own, and there was no need to seek it abroad. If England sent her students to Rome in order to study Classic tradition and they came back with forms and facts therein they would have failed. But if they went to Rome and tried to emulate that Classic tradition then Rome would have helped them. The problem had been brought home to them in America, as they had a school in Rome which was conceived by a former President of the American Institute of Architects, and to which he had devoted his life and fortune. His own advice to the student was not to use Rome as a studio, but as the ground for expansion of his ideas. The problems of official architecture alluded to by Mr. Stokes affected them in America in the same way as English architects were affected. The American Institute of Architects was the father of a law which had been in operation for a number of years, by which the principal work is given out to individual architects. Recently that law had been attacked, ostensibly in the interests of economy, and the figures were made to show very favourably in favour of departmental architecture. But they knew that whereas the individual architect gets his 6 per cent. for his work, it would cost the Government at least 7½ per cent. Moreover, a higher type of architecture is produced than under departmental control. He hoped that the American law would not be overturned and an English law on the same lines would be enacted.

Mr. Stokes, after acknowledging briefly the cordial vote of thanks, announced that the next meeting would be on November 20, when Mr. H. H. Statham will read a paper on "Modern French Sculpture."

BRITISH SCHOOL AT ATHENS.

THE annual meeting of subscribers to the British School at Athens was held on Tuesday last in the rooms of the Society of Antiquaries, Burlington House, W. The chair was taken by the Dean of Westminster (the Right Rev. H. E. Ryle, D.D.), who proposed the adoption of the annual report. The School was founded in 1886, when Mr. F. C. Penrose acted as the first director. In his remarks, Dr. Ryle took occasion of this the twenty-fifth anniversary to sketch the development and success of the School.

It appears from the report that the excavations at Sparta being successfully completed the committee and the director made careful search for a new field for the activities of the School. After protracted negotiations the Imperial Ottoman Government has just granted a firman for excavations on a promising site on the Dorian promontory, to the east of ancient Cnidos. The spot, which once bore the Greek name Akanthos, is now known by the modern Turkish name of Datcha. Mr. Dawkins twice visited the site, and reported that there is reason to suppose that this is an archaic Greek sanctuary with votive offerings. The remains of the ancient city are extensive, but it is only proposed to excavate this sanctuary, which lies in a small valley near the sea. Mr. Dawkins will go out specially to take charge of the excavation.

Mr. Dawkins, the director, after returning to Athens at the beginning of November 1910, went to Datcha to get the local information necessary for application for a firman for excavation. The boycott of Greek shipping and the quarantine regulations made steamers infrequent, and the journey, further hindered by bad weather, took several weeks. These delays were used to visit Ephesus, Patmos, Cos, and Cnidos. He then went to Melos to make the local arrangements for the excavation, visiting the chief ancient sites in the island, and then spent some time at Sparta. Here he worked in the museum at the arrangement and publication of the finds from the Orthia excavation. In April and May he conducted the excavation at Melos. He spoke at two open meetings of the School. In July and August he travelled in Cappadocia. This is the third summer he has spent there, gathering material for a work on the dialects of Greek spoken in Asia Minor. Mr. Dawkins will now take a year's leave of absence from the School, his place being filled by Mr. F. W. Hasluck, M.A., as acting director. Mr. Dawkins will, however, go out to superintend the excavation at Datcha.

The excavation at Phylakopi in Melos lasted from March 30 to May 30, with a break for the Greek Easter. The director was present throughout.

The German Institute lent their old and experienced foreman, Evangelis Kosmopoulos. Mr. W. J. Jones was present from May 15 to 29 as architect, and made the plan and drew some of the more important vases. A series of photographs was taken by Mr. R. Rohrer, the photographer of the German Institute, who had previously worked for the School at Sparta. As mender, Jannis Katsarakis came from Palaikastro. The work was on a moderate scale, the number of workmen varying from twenty to fifty. The finds are to remain in Melos to form the nucleus of a local museum.

The object of the excavation was naturally to supplement the results of the previous work, especially in the light of our greater knowledge of Crete and the mainland of Greece. Some measure of success was attained in this.

At the beginning of the excavation a few trial pits were made to explore the lower levels in parts of the site which had been previously dug, notably underneath the Palace and in the region to the north of it on the edge of the cliff, where the earliest remains had been found. The results of these operations were to give good preliminary ideas of the stratification, and to produce a number of vases, but no buildings of importance were found underneath the Palace, and the remains of the earliest settlement seemed to have been entirely exhausted at the first excavation.

After Easter the main part of the year's work was begun, which was to clear to the bed-rock a substantial area of the town, which had been hardly touched before. This was the south-east part of the town, just inside the eastern part of the great wall. The surface of this area was practically flat, and proved to have been terraced at some period since the desertion of the site. In consequence of this the houses were somewhat destroyed to the north, but excellently preserved to the south at the outer edge of the terrace. Here there was a metre and a half of surface soil almost entirely without sherds, and below this walls to a further depth of six and a half metres, before the rock was finally reached. This area was sufficient to give satisfactory results, and in several points Mr. Dawkins was able to carry further the observations of the previous excavators.

At the meeting on Tuesday, Mr. Dawkins, the Director, gave an illustrated account of the excavation at this prehistoric city at Phylakopi, in Melos. This has already been the scene of a long excavation of the School (1895-1899), the account of which has been published in book form. The central position of Melos and its trade in obsidian, the best material for knives before the discovery of iron, gave the island a special importance, he explained, in the Bronze Age, and its capital, situated on the sea cliff now called Phylakopi, was a flourishing city all through this period. The earlier excavation revealed the remains of three superimposed cities, and gave a complete history of its art as shown in a long series of painted vases. Foreign importations from Crete and later of Mycenean pottery were detected, and it was to supplement these observations in the light of our present increased knowledge of pre-historic Crete and the mainland of Greece that this supplementary excavation was undertaken. The hope that further chronological links between Melos and the outside world would be established in this way was fully justified.

A part of the city was chosen for excavation which had been hardly touched in the previous work. The surface had at some time been artificially levelled, but in the best preserved part the walls were covered with four feet of earth, and from this point down to the bed-rock, some 16 feet below, the remains of walls were found, and the three successive cities clearly made out. The pottery was carefully preserved according to its levels, and yielded the following main results. In the first and early second cities, that is, in the latter part of the third millennium B.C., the external relation was rather with the mainland of Greece than with Crete, as the imported pottery was for the most part of types found at Tiryns and in Bœotia and Thessaly. The native art at this time, however, has an independence which it presently lost and never regained. These earlier connections, reflecting the obsidian trade, gradually gave way to the increasing influence of Crete, which begins in the Middle Minoan period, about the turn of the third and second millennium. This influence was marked by numerous imported vases from Crete. Of these, fine examples were found dating to about 1500 B.C., showing the characteristic patterns of nautili and other marine forms. This influence was so strong that the earlier style of vase-painting gave way to a style based entirely upon these foreign Cretan models, first of the Late Minoan I. and afterwards of the Late Minoan II. period, although this style was developed in the native manner and with the native technique. The latest remains, dating from the end of the

Bronze Age, and probably going as late as 1000 B.C., show this Cretan influence giving way to the Mycenean, and reflect the decrease in the Cretan power which followed the sack of the Palace of Knossos. This final period witnessed also a great decadence at Phylakopi itself, for the native vase-painting, which was at first independent, and then a copy of the Cretan, is now at last almost extinguished, and hardly any vases are found except these imported Mycenean. With the beginning of the Iron Age, obsidian, as a cutting material, lost the value it had had all through the Bronze Age, and Melos, as the centre of the trade, declined in importance, and the site of its capital at Phylakopi was finally deserted.

Amongst the minor antiquities some clay crucibles for bronze casting were of interest. They had three feet and a spout, from which, when the crucible was tilted over on its two front feet, the molten metal could be poured. A fine stone mould for a double axe was found in the earlier excavation. These crucibles showed signs of considerable use.

It was established that, at least in the time of the first city, the custom prevailed of burying children inside, or at least amongst, the houses. In several places lying on the rock or placed in holes made in its surface large jars were found containing the bones of young children. Two of the jars were painted, and all belong to the early geometric style, which goes with the latter part of the first city. There seems little doubt that the burials were actually in the houses, and from the numerous examples found, and the fact that all the burials were of children, it seems that this custom of intramural burial was confined to infants. One such burial was found in the original excavation. The jars were all broken, but the majority of them have been reconstructed and photographed. In two cases the mouth of the jar was covered by a basin. The jars themselves contained practically nothing except bones, but in association with the main groups of these burials there were a number of painted jugs and cups which, though not inside the jars, were probably buried with them.

In addition to the photographic slides shown on the screen, a number of drawings, plans, and photographs were arranged round the room to show the work of the Society.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

THE first general meeting of the session was held at the Society's room, Leeds Institute, on Thursday evening, November 2, the President, Mr. Sydney D. Kitson, M.A., F.S.A., F.R.I.B.A., in the chair. Messrs. Harold H. Woodhead and Walter Butler were elected Associates of the Society. The following changes in the officers of the Society were then announced, owing to Messrs. Ralph W. Thorp, A.R.I.B.A., H. Ascough Chapman, F.R.I.B.A., and J. H. Farrar having left the vicinity of Leeds:—Mr. Wm. Whitehead, A.R.I.B.A., elected Hon. Secretary; Mr. Peel Schofield, A.R.I.B.A., elected Hon. Librarian; Mr. J. W. Morley, F.R.I.B.A., elected Member of Council; Mr. Douglas Bowman, elected Associate Member of Council.

An exhibition of the students' work during the year was then held, and the following awards made:—

The Society's silver medal and £5 5*s.* awarded to Mr. F. L. Kruckenberg for measured drawings of Hubberholme Church, Yorkshire.

The prize for construction, £3 3*s.*, was awarded to Mr. W. Voelkel for a design for an entrance hall and staircase to a public building, the winning design being a well worked-out scheme in reinforced concrete.

The following gentlemen tied in the design competition, four subjects having been competed for during the session:—Messrs. E. H. Gibson, L. A. Elsworth, and P. G. Robinson. A prize of £3 3*s.* was awarded to each.

The Halden prize of £4 4*s.* was divided between Messrs. L. A. Elsworth and Walter Butler, whose work was considered of equal merit.

The Sketching Club prize of £2 2*s.* for sketches was awarded to Mr. F. L. Kruckenberg, and £2 2*s.* for detailed studies to Mr. C. B. Chadwick.

The President expressed his appreciation of the excellent work done during the year.

ILLUSTRATIONS.

ST. BARTHOLOMEW THE GREAT, SMITHFIELD.

ST. BARTHOLOMEW THE GREAT, of which the drawing shows the north transept and choir aisle, was founded in 1123 by Rahere, companion of Hereward, "last of the Saxons." From the chronicles of the period it appears that Rahere, repenting of the levity of his early life, went in the year 1120 on a pilgrimage to Rome, where, on arriving, he contracted a sickness under which he made a vow that, should he recover, he would found a hospital for the sick poor. On his return to England it is related that St. Bartholomew appeared to Rahere and bade him build a church in Smithfield, which, with the King's consent (for the spot indicated stood on the King's market) he accordingly did. The choir is all that now remains of Rahere's erection, and the drawing shows the north aisle of this part of the early building. The nave disappeared when Henry VIII., at the dissolution of the monasteries, sold the "House of Black Canons," as it was then called, to Sir Richard Rich. The choir and transepts remained as a parish church. The nave was rebuilt by Queen Mary, but, unfortunately for the student, the "Black Friars" were dispossessed by Elizabeth, and nothing remains of what would now have been a most interesting curiosity. During subsequent years the thrifty and apparently not too conscientious parishioners were not above putting small portions of the building that they could do without to various profitable uses. A smith's forge was soon at full blast daily in the north transept, and the Lady chapel was sold as a fringe factory. These were recovered in the works of restoration completed in 1868 under the superintendence of Messrs. Lewis & Slater. At this time the floor of the church, which had been buried several feet deep by the accumulation of dirt caused by centuries of neglect, was dug out. The work of restoration continued in 1887 under Sir Aston Webb. The Norman portion of the building asserts itself in the round arch and massive circular piers with their cushion caps, and is of about the same period as St. John's Chapel in the Tower, to which it is very similar. The wall on the right of the picture, pierced by two Early English pointed openings, is probably, not as may be supposed, a piece of modern patchwork, but the parclose backing of the choir stalls which ranged across the transept openings. Between these it is probable the rood screen extended, for hard by are the circular turret steps, which led, no doubt, to the rood-loft above, long since disappeared. This screen existed in the thirteenth century, and was probably contemporaneous with the wall here seen, the foundations of a similar wall ranging across the south transept opening being discovered in 1864. The old transepts, deeper than the present erections, were destroyed by fire except a small portion of the south. It is curious to see how the later work has been joined on to the top of the old Norman. Of this there is little to interest, but volumes might be written upon the crumbling remains of Rahere's mighty work, that speaks through the centuries of the powerful grandeur and rugged dignity united with pious devotion of a people of the past. Our drawing by "Reynard" was awarded a prize in *The Architect* Students' Sketching and Measuring Club.

NEW SIDE-CHAPEL, ST. PHILIP'S CHURCH, EARL'S COURT ROAD, S.W.

THE space to the south of the choir hitherto used for lumber has been converted into a side-chapel. The new window seen in the illustration to the right of the reredos is successful in providing light to the chancel, which was before very dark and gloomy. The chapel is part of a scheme which includes deepening the chancel and opening it up to this new source of light.

The reredos and table, altar rail, clergy desk, and the screens on the north and west sides are all of Austrian oak specially chosen for its grain. The sanctuary floor is a scheme of black and white marble with sanded surface, the altar and Communion steps being accentuated by being polished. All the metal work was specially designed for the chapel, and is carefully executed in the old manner. The three panels in the reredos are intended to be painted, and panel doors, in lieu of the temporary wing curtains, are to form a triptych.

At the same time as this work a new entrance porch has been built to the south transept, providing access to the church and parish hall.

The main contractors for the work were Messrs. Maides & Harper, of Croydon, and the architect Mr. Francis Bacon.

BANK PREMISES, PORT SAID AND TANTAH.

THESE premises were designed and carried out for the Anglo-Egyptian Bank from the designs and under the superintendence of Mr. Robert Williams, F.R.I.B.A.

HE A.A. EXCURSION TO THE LOIRE, 1911.*

(Concluded from last week.)

T Villandry we spent a most exhilarating morning. The château, standing on the site of a mediæval predecessor, which only one tower remains, was built in the second half the sixteenth century, altered in the eighteenth, and ain, for the worse, in the nineteenth (I presume t fact De l'Orme, when appointed Surveyor-General to the throes of more alterations, but this time undertaken a spirit of architectural zeal, with much taste and judg- nt, though some of us may think without quite a suffi- nt leaven of discretion. M. Carvallo, the present owner, o described himself as owner, architect, builder, and work- n, very kindly devoted a morning to our entertainment. took us all round his garden, and showed us what the glish *bestiaux* had done. There had originally been a y large formal garden; but when the English family ived, believing themselves, no doubt, to be people of great te, followers of the romantic revival, and devotees of land- pe gardening, they levelled all the terraces, did away with stiff, formal gardens, and planted grass and trees every- ere and anywhere. M. Carvallo is bent upon restoring all s. He is at work excavating, and has already found the es and sometimes the walls of the principal terraces and lks. The garden immediately in front of the house he has eady laid out, and very well he has done it, too. But his scorn of grass as a herb for garden effects I don't nk many of us will share. Grass can be kept green and el all the year round—in our country, at least, if not in —and, therefore, is surely as suitable as anything else in arden colour scheme.

In the house, too, he is making sweeping alterations. He estoring it as nearly as possible to what it originally was. tainly it had been spoilt. Many of the added windows e only shams, he assured us. The tower certainly looks ter solid than it did when pierced with windows, except t, of course, the newly-built-up portions look very patchy present. But it is a better foil to the rich Renaissance k. The removal of the terrace and bridge at the side of house, too, has done no harm.

M. Carvallo is nothing if not an enthusiast. Architecture, freely confesses, has altered his whole outlook upon life. was a scientist, and Villandry has brought him, in addi- n, culture, civilisation. It has humanised him. He even t the length of telling us that we, as architects and artists, ck him at once as better-looking and more intelligent- ing men than the ordinary men of commerce and affairs!

From Villandry we drove to Azay-le-Rideau, to the teau that, if I may make bold to choose, was the gem he excursion. The river front is altogether delightful. re is a kind of music in it, obtained, I know not how, ept by a happy combination of excellent qualities. Good portions there are, fine scale, and symmetry, though this is by no means the mathematical sort, for there are many le irregularities which the eye does not at first detect. the quality which above all others distinguishes it and kes it so much finer than the work of the same period at is is its marvellous rhythm. With the bright sun upon he whole elevation dazzles one in its shimmering white- . It seems hardly real.

At the other side, too, the approach is equally charming. ong, straight avenue on the axis of the entrance doors s one first past a pair of excellent gate piers of seventeenth ury or eighteenth century design, upon either side of ch, facing the château, are picturesque stable buildings, ted at about the same period. These piers serve a very ul purpose. They block out the view of nearly the whole he château, allowing one to see only a vista of the en- ce feature, for feature it is, and a good one by itself. I think it must have been a thorn in the side of the archi- of the building. I should fancy the history of it must been something like this: Gilles Berthelot, the owner the house, and sometime Treasurer-General to King ncis I., probably wanted to be in the latest fashion. He ted to have in the middle of his house a fine feature, one in the new Italian style. Accordingly he did just what y another foolish client would do to-day. He dispensed his architect's services for this portion of the building, introduced the sculptor from Italy over his head. The ptor really did well, on the whole, though there is a deal of petty nonsense in his detail. But where he failed where a great many other people used to fail at the period—he did not realise that what he had designed in no way belonged to the building of which it was a part. It is just as if one design were inserted in a part cut haphazard out of another.

I have left mention of the Château of Chenonceaux to the last for this reason: it contains the latest development of architecture that we saw, with the exception of Mansart's wing at Blois. But whereas at Blois the characteristic part—the part that one always, though maybe involuntarily, associates with the name—is the wing containing the staircase, at Chenonceaux the bridge gallery is the picture that flashes to one's mind with the word. This, together with the stables here also, is the work of Philibert de l'Orme.

De l'Orme, having studied his art in Rome, was practically the first French architect to understand what Classic architecture really meant. Not only did he see that it was more than an affair of decorative details, such as had marked the Renaissance up to this, but that a building should be a single work of art, the intellectual output of a single individual. The system of producing architecture by collective craftsmanship died with the old Gothic. De l'Orme hated the old order of things, and he probably saw enough of the bad work resulting from a combination of French masons of the old school with Italian carvers and painters of the new, each out of sympathy with, and failing even to understand, the aims of the others.

In the bridge of Chenonceaux the feeling is different from any of the contemporary work in the neighbourhood. The building is not better than some of the others that we saw. I do not think it is as brilliant a piece of work as the river front at Azay-le-Rideau. It contains certain faults of detail, such as the missing out of some of the modillions in the cornice, in order to bring in the tops of the pediments, and the placing of semi-circular headed windows in the rounded bays over the piers of the bridge—this being rather typical of De l'Orme's weakness for constructional feats, for there was a certain difficulty in doing what the surveyor would call "circular-circular" work. But this bridge is a design. I feel that the quality of breadth which it possesses was sought for deliberately and scientifically. Every effect was first considered on the drawing-board. To compare it again with Azay-le-Rideau, the one is a sonata, the other an impromptu.

The remainder of the château, also partly built over the river, makes a good foil to De l'Orme's more serious work. On both sides it groups up in a very picturesque manner, but the stunted proportions of the first floor rather spoil the effect of the entrance front. One's sympathies are all with Diane de Poitiers. To be turned out of so beautiful a home as soon as it was hardly completed by the jealous vengeance of Catherine dei Medici was a harsh punishment.

I cannot conclude a description of this year's excursion without some reference to the towns.

At Blois we spent more time than anywhere else. And a very pleasant little town it is, too. With the château on one hill and the cathedral on another, the town itself converges to the river bank and a fine bridge across the Loire. Here is a piece of laying-out that will commend itself to town planning enthusiasts. The axis line of the bridge is continued through a portion of the town, climbs by a flight of steps uphill past a big flower bed, and terminates in a statue to Denis Papin, a native of the town, and the George Stevenson of France. From here the view looking back is most impressive, for the same line is continued to the horizon in the other direction in a fine *route nationale*, between forests upon either hand.

In addition to the buildings already described are many others that are worth seeing. There are two interesting eighteenth-century gateways close to the cathedral. They lead to the Bishop's palace, the gardens of which are open to the public, and from where there is a fine view across the river and over the surrounding country.

Tours is a very different town. In the first place, it is very much bigger, and then it is situated on flat ground at the south side of the Loire. Nominally, we stayed here for a longer time than we did at Blois; but we were so much occupied with our excursions into the neighbouring country that really it is hardly correct to say that we visited Tours at all. This was unfortunate, but it was also unavoidable. The town is interesting from many points of view. It contains many old buildings of all periods. But the general impression that one gains is that of a modern city, not much more than 120 years old, well laid out, and the majority of its buildings belonging to the latter half of the last century. The town glories in a new Hôtel de Ville, a building which suffers from too much sculpture and a general want of restraint. I prefer the older Greek revival, Palais de Justice, which

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A paper read before the Architectural Association on ber 30, by Mr. H. H. Hill, B.A.

balances it, and is more in keeping with the general quiet air of the architecture of the place. The building of which we saw most—naturally—was the railway station, a very fine piece of work, and, unlike almost any station that one can think of in England, a pleasure to the eyes.

When we went to Loches we visited a typically mediæval city clinging round the base of the feudal castle. Here there is no town planning. The streets are narrow and winding. They have that mediæval trick of never seeming to go straight for anything. The Early Renaissance Hôtel de Ville is unceremoniously poked into a corner, and built up against one of the gateways of the old town. The Tour St. Antoine, all that remains of an old church, is a landmark; but, like so many other Early Renaissance towers, does not appear to be a success. Early Renaissance forms are too small and too refined to be of value in tower design, where bigness of scale and boldness of outline are the chief requirements. If that tower had been built in the old Gothic days the walls would have been battered, and something would have been made of the buttresses.

Saumur looks a fine town as one approaches it. Our first view took in a strictly orthodox Classic theatre, just over the bridge, an imposing building, though rather dull. The Hôtel de Ville, a little farther up the town, has much more life in it. Partly Gothic and partly Renaissance, I think the earlier work, with its plain wall space and quaint roof, was the more interesting.

Mr. Gerald C. Horsley, the President, in opening the discussion, said that in the last words of his interesting paper Mr. Hill had told them how he came to address them that night. It was the privilege of the President for the time being to ask one of the members present at the Annual Excursion to read a paper to the Association about it. He believed the audience would agree with him that in asking Mr. Hill to undertake that work he had been very fortunate in his choice. It seemed to him that Mr. Hill was altogether too modest in disclaiming any special knowledge of the history of French architecture. His paper, on the contrary, which was extremely sympathetic and a just and critical account of much that was seen, proved at any rate that he had a wide knowledge of the subject and a true and deep insight into the enthusiasms and those irresistible motives which impelled forward the development of French architecture. Certainly the A.A. was fortunate in its choice of the locale of the excursion. Rich as it was in works of the greatest architectural merit, it was also rich in the beauties of nature. They did not see the river Loire in a moment of her special power and magnificence, but they saw her in her summer mood and dress, supremely beautiful under the bluest and clearest of skies. Mr. Hill had rightly lamented in his paper that they could not give more time to Tours. There was a large amount of fine painted glass in the cathedral, and the bays of the choir and of the nave were excellent examples of that splendid bay design where the windows of the clerestory are large ones, being the full width of the bay. There was also a remarkable seventeenth century organ front in the transept. Tours again was famous for good town planning, especially at the point where the principal bridge crossed the river. The churches were extraordinarily interesting, particularly the Abbey of Fontevrault and Candes. Mr. Hill had referred to the fact that some of the châteaux were rich in their possessions of old furniture, and instanced Chaumont and Langeais. This was notably the case, and besides furniture the wealth of fine tapestries of different dates was quite remarkable. The painted ornament also in the wooden ceilings formed part of interesting schemes of decoration in the rooms; and in this connection one remembered the fine tiled floors. He was glad Mr. Hill had spoken of the charming chimney-pieces at Langeais. All who saw them agreed that these were the finest they had seen on the tour.

Mr. J. Johnson, in proposing a vote of thanks to Mr. Hill, remarked that the detail of the work seen on the excursion was most interesting and distinctive. The arabesques on the pilasters were of the greatest refinement and delicacy. Many of the châteaux were very much alike, but they varied so much in detail that they were exceedingly picturesque. After having a surfeit here of the Georgian box of bricks, it was interesting to see how the French treated their residences in those times. For his part, he would like to say he had been delighted with the excursion.

Mr. H. W. Searles-Wood said he had followed the paper with the most intense interest, as he did not go on the excursion. Professor Blomfield, in his paper at the Royal Institute in December, made the remark that François I. was his own architect to a large extent. Perhaps that accounted for some of the irregularities in design alluded to. An
teresting account was given by Mr. Noel Williams in
Henri II. of the period when most of the châteaux visited h
been erected. He would also like to mention that in To
there was a very interesting Vacation Course in French
English people in connection with the University. This
carried on during the month of August; there were the cou
at the University in the morning, and in the afternoon th
were opportunities for visiting places of interest.

Mr. Louis Ambler said he would have liked to have g
on the excursion, but unfortunately he had not been able
renew his acquaintance with the châteaux and church
It was about twenty-five years since he had seen any of the
He had then been fortunate in having a month to spe
among them. Of course, a good deal of the time was ta
up by sketching. It was a wonder to him how the A.
excursion party managed to see so much in a week, for
did not see much more in a month. Chambord was v
interesting, and very huge and vast at a distance; but p
haps a little disappointing when seen close. What one t
to be a black marble inlay, for instance, proved to be o
slates nailed on. At Chaumont they were then allowed
sketch inside the house; one very interesting feature was
fireplace in the Astrologer's Room. In those days the w
at Blois by Mansart was not considered quite the thi
whereas now fashion had changed and many regarded it
the finest part of the buildings.

Mr. A. Oliver said one of the important points to be bo
in mind was that the buildings exemplified the grad
transition from the great fort and fortified house to
château. At Loches they had a fortress, and nothing
a fortress; at Langeais there were battlements and machi
latures, although used first of all for defence. At Azay-
Rideau the idea of defence had gone and the features w
used as ornament. At Chenonceaux there was only a sm
portion of the castle left. At the beautiful church at Can
they found in the west front a fortified church door t
was almost the exact counter-part of that at Bégadan
down in the south. In the whole district from Rheims
Toulouse there was a string of fortified churches with
western doors. The architect who put up the west fr
came, no doubt, from the South of France, where he w
accustomed to those features. Those who went on the
cursion were very much obliged to the organisers for
care taken. He felt certain that if they tried to map ou
more interesting tour showing that process of evolution t
could not have done so.

Mr. A. T. Bolton said that he had not taken part in t
architectural "bean feast," but about 1893 he had gone do
that way. He did not think that any one passing down
Valley of the Loire could fail to be greatly impressed. So
miles further south there was the château of La Roc
foucauld, where it was possible for the student to do a gr
deal of work; it might not be so fine as many of those in
tour just described, but at any rate it was available for sket
ing. In his opinion, Mr. Hill had been very hard on
work of François I. He would like to emphasise the po
that they must not entirely disassociate these châteaux f
the history of the time. With François I. building wa
life-long hobby, and the largest part of the income of
kingdom must have gone on the erection of his châteaux.
soon as one was finished he began another. But he did
trouble about keeping them up. The idea of Chambord
a royal hunting lodge. It was not built as a house,
rather as an architectural idea. Some of the châteaux w
simply given to ladies of the court. If anyone wanted to kn
of the relations between the King and artists they would f
them given in the record of the relations between Franç
and Benvenuto Cellini. The latter came from Italy wit
queer reputation; when he arrived in Paris the King g
him a small château which at the time belonged to some
else. Cellini became extremely annoyed at finding the Fre
tenants there. On complaining to the King he was ask
"Are you the Benvenuto Cellini we heard so much about
Taking the hint, he pitched the owner out neck and cr
Cellini in various ways thoroughly played up to François
as in his proposal for a statue 80 feet in height. W
things began to go not quite as well Cellini appears to h
tried to skip out of the country with some silver things, tho
in his biography he protests that he was going home to l
after some relations. The picturesqueness of the epoch sho
be considered in relation to these châteaux. Other sma
buildings of the period were of very great interest.
whole district in fact was well worth anyone's while to sp
as much time as they could in.

Mr. E. Gunn thought that Mr. Hill's similes had be mply delightful—especially his allusion to Touraine as being kind of ecclesiastical no man's land. In speaking of the yal château of Amboise, Mr. Hill hardly brought out the ct that what remains is a mere fragment of the original.

Mr. G. H. Jenkins said that if a man started to go on e A.A. excursions he was sure from his own experience that at man would continue to go in future years. If they only ew what a splendid thing the excursion was they would avel a long way in order to attend. He now felt extremely rry that he had not been before that year. They saw a lot work in the laying-out of gardens and so on which had be borne in mind. The ideal did not seem to have had uch effect on the ultimate completed building. At Chamrd they started with a plain structure, when they got near e roof they blossomed out in the wildest extravagance, and e result was incongruous.

A vote of thanks was then put by the President, and rried with applause.

Mr. Hill, in replying, alluded to the assistance received om the photographs by Mr. Baxter Greig, Mr. A. W. ennings, and Mr. F. R. Farrow, without which his paper uld have been much duller. Perhaps he had been wrong use the words "carelessness of design" in connection with ançois I. But owing to the circumstances of design or to ançois being his own architect, or to the buildings growing by bit, they did not grow quite in the way they were tended. Certainly that was so at Blois. He thought the thusiasm of the age sometimes outran the scholarship of e race of architects that was growing up. The French ilistine was, he considered, far worse than the English. A eat many châteaux were destroyed in the eighteenth cenry simply because people did not want the trouble of keepg them up.

ENGLISH MEDIÆVAL ARCHITECTURE.—IV.

HE fourth of the course of ten public lectures by Mr. Edward S. Prior at University College, Gower Street, .C., was described in the synopsis as dealing with "The formed Architecture and its Provinces." In the precedig lecture, which treated of the coming of the Normans and glo-Norman Romanesque, emphasis had been laid on three periments of the masons in their building of great abbey urches—(1) in respect to the rib-vault; (2) in the recessing arches; and (3) in the resultant shaping of the arcade r. All these were an advancement through obvious and aightforward manipulations of construction. They might regarded not as a fancy of designing, but as deformations sacred classical conventions by the masons, partly under ssure from their ecclesiastical masters and partly from necessities and conveniences of building.

Although the originating principles were the same, Anglo-rman developed in one way and South French Romanesque another, because limiting circumstances peculiar to each ality controlled the ambitions of the builders. The one ermining factor in the English tradition and convenience in the growth of great oak timber in the British Isles—t best constructive timber of the world. The practical stion of timber made style. If the Anglo-Norman nave s intended to be vaulted, yet in practice, as at Durham, st often it had to be wood-ceiled as well. In the South of nce, oak being less to hand, men were driven to experint with solid stone roofings without use of wood. This eriment with domes led to naves of great width—50 or feet, like that of St. Front. In England it was difficult get oak beams longer than 35 feet; consequently, the glish naves became indefinitely long, but only about 35 feet e. The ambition of vaulting was continuously in the nd of the builders—the bay design is proof of this.

A distinct variation from the large Benedictine foundans of the East of England occurred in the two great ley churches of the Western Midlands, Gloucester and wkesbury. The ground plan was of different proportions. nave was not so elongated (say 180 feet), a double square plan, whereas at Norwich and Winchester the Norman es had been planned as halls of four squares and 300 feet length. The best evidence of fresh construction is the pression of the triforium in the naves and in their lofty ar-piers. Many of the peculiarities have a German plexion.

There were thus two constructional elements appearing by side in the early Anglo-Norman style—on the one d the vault and the big scheme of pier triforium and estory functioned for it (which may be called the "great Benedictine scheme"), on the other the wood ceiling and the wall arcade, triforium, and clerestory functioned for it (which may be called the "lesser Benedictine scheme"). In practice there was no settled choice by abbey builders in many of their designs between the two constructions. Constantly there are signs of indecision. There can be no doubt, however, of the intention of wood ceiling as definitely adopted by the builders of many of the smaller abbey churches. In the smaller abbey building the germs are to be recognised of much that was afterwards advanced into the English Gothic Transition. The prevalence of a smaller monastic church-building in which vault ideas were inoperative counted for much in the course of the English style as this became Transitional to Gothic. For one thing, it explains how at the outset the first Gothic building in England seems to turn away from the most forward developments of the antecedent Romanesque.

The building of the great abbey churches of Benedictine foundations in Eastern England created a body of masoncraft that was paramount over wide stretches in their neighbourhood. Its bay designs and vaulting intentions, its masonry and ornament were copied. But there were stretches of England outside this masoncraft. The diocese of York, for example, was open to the Canon foundations, Secular and Regular; not conservative of the great abbey church tradition, of a different use in plan, or freer experiment in construction, going immediately to the purposes of the wood ceiling. This may be designated "Canons' style." This freer building at once produced two developments which are immediately of consequence as indicative of the advance in style. First, the constructive pointed arch; second, a rich sculptural decoration originating in Cluny. The pointed arch in its first use, and until it became universal, was in its meaning always building experiment; it was a device to secure stability in the abutments against the thrust of the arch. In England it was used in the twelfth century for the arches of crossings, as at St. Bartholomew's, Smithfield, also for the last arch of an arcade where its abutment was weak. The next use was in the vault for the sake of convenience, and then this vault use made it convenient, too, for the window. Finally, it was thought necessary for the eye, and was adopted in the doorway.

The discovery of the pointed ribbed vault by the Gothic builders has been too much considered, said Mr. Prior, as a geometrical question—as if the paper setting out of arches determined their shape, whereas the inducing experiment that led in English style to pointed arch-ribs seems to have been the habit and experience of wood roof-builders. The existence of the wood roof, with its tie-beams, necessitated that the vaulting immediately below should be level crowned, and the transverse arches had to be pointed in order to rise as high as the diagonals.

The next evident mark of style coming into mid-century Anglo-Norman building is the increased elaboration of sculptured ornament. Some constructive richness came by the development of wall arches. These were not merely ornament. As the wall was functioned vertically by the concentration of thrusts to certain points, so the wall was functioned horizontally by means of wall-arcades. By them, in place of masonry being of full thickness throughout, its bulk could be reduced in places, leaving the full necessary width of wall for support or abutment only where this was wanted, viz. at the base externally, at the sills of the windows, at the heights of the floor lines, or of the roof plates.

The main sources of the ornament used in Benedictine building are to be found in the manuscript painting and in the coloured decorations of the wood halls and ships of the Saxons. The patterns painted first by monks on the plain stone walls began to be carved when the skill of the masons grew capable. Some were more easily carved than others, the notched diapers, for example, and zigzags of all kinds, and so came early into use. Certain types of the ornament may be traced to the pre-Conquest cross-carvers, particularly the flat incised outlining of animals. Another source of carving style was the much-practised metal work. But all such decoration as applied to stone was a surface affair; no more constructively part of the forms which it decorated than the flat painting it replaced.

As the chisel-ornament grew sumptuous, quite new elements made their appearance—particularly in the adornment of arches. Here a close alliance with the ornament of the West of France is to be seen in English style, though the derivation is complicated by the suggestion of mixed origins. This peculiar period of twelfth-century carving might be called the "zodiacal" phase, because it employed a profusion of symbolical animal forms, in which the signs of the zodiac were conspicuous. The new elements did not immediately supersede the Norman zigzags, but became mixed with them. There now also appeared for the first time since the departure of the Romans a power of distinct figure sculpture with a modelling of relief from the round. The derivation was most distinctly from South-west France. But the way of this connection was probably by the famous St. Iago di Compostella, where, as early as anywhere in Europe, figure-sculpture made a definite start. At the same time came the free treatment of foliage based on nature instead of on manuscript, and shaped in the actual body of the fabric instead of merely surfacing construction with decoration.

The strong force for English art in the direction of simplicity lay in the reformation of the Benedictine Order by St. Bernard. The Cistercian founders inveighed against the senseless barbarous ornament of Romanesque style, just as they rejected bell-towers as evidences of luxury and pride. The daughter houses of Citeaux were established in England in considerable numbers, and on a considerable scale, in the second and third quarters of the twelfth century. A similar rejection of Cluniac opulence was emphasised by the Augustinian houses. In addition to simplicity of plan, austerity of style appeared in the Reformed building. In England, the first symptom of this was the rejection of Benedictine ornaments, the profuse zigzags, the grotesque beasts, as well as the intricate arcadings and apsidal complexities. In some places the foreign reformers brought with them certain Burgundian features; in others, the local masoncrafts seem untainted with any specially foreign mixture, and to have been practised by plain English builders in distinction from the elaborate ornamentalists of the developed monastic Anglo-Norman style.

CONCRETE INSTITUTE.

A SPECIAL meeting of the Concrete Institute was held at Denison House, 296, Vauxhall Bridge Road, S.W., for the purpose of hearing an informal lecture illustrated by lantern slides on "Fireproofing," given by Mr. Richard L. Humphrey, of Philadelphia (President of the National Association of Cement Users, &c.). The chair was occupied by Sir Henry Tanner, C.B., I.S.O., F.R.I.B.A., &c.

Mr. Humphrey in his opening remarks said America had the proud distinction, if it could be put in that way, of having, as she had in many things, the greatest fire losses in the world. The losses in America are enormous, and each succeeding year does not seem to bring an appreciable decrease in the total. Whereas in Europe they are only reckoned in cents, the capital losses in America are reckoned in dollars, i.e. nearly ten times as much. It would seem, therefore, to be rather incongruous for America to talk to a country that is particularly low in fire losses on the subject of fireproofing. But the very fact that they had such enormous losses in America has led them to study the subject of fire prevention and to find out ways and means to prevent this annual destruction.

Although in Europe the question was not by any means of the same urgency as in America, yet his observation led him unhesitatingly to believe that it behoved all the countries of Europe to study the subject seriously.

While it is true in Europe there were not the capital losses of 2 or 3 dollars per cent. annually, nevertheless there is no reason why Europe should have the capital losses at all. And the mere fact that looking across the great pond the losses were found to be much greater in America than here, was no reason why people here should be self-satisfied and not strive to prevent the losses that they did have.

There were three great epochs in building construction. First came the primitive savage, who must have shelter and who constructs it of such materials as are available. Next comes some regard for the sanitary condition of this structure. And then finally regulations have to be adopted for the safety of the building itself and its safety from damage by fire. Great Britain was blessed with an abundance of slate and building stone, while America was blessed with an abundance of lumber. When the settlers came to America the frame structure sufficed for their needs; and when in later times the permanent structures came they were surrounded by these frame buildings, which were a constant menace. That building construction was nearly always a question of economy was shown by the present condition of things in America, where the growing scarcity of lumber and the growing cheapness of concrete has led to the elimination of these flimsy buildings. In time they might expect that the ever-present menace i
many cities would become eliminated.

The use of the term "fireproof" was dangerous w
applied to buildings, for it instilled into the minds of
occupants ideas which led them to neglect the necessary
cautions and which they would observe if the building
labelled non-fireproof. It was necessary to erect struct
of high fire-resistance and then to provide means for putt
out any conflagration. In America, however, they b
under the usually rather poor building laws buildings
low fire resistance, while equipping the fire departments w
magnificent fire-fighting appliances and high-pressure wa
systems. The country is subjected to a great annual tax
the maintenance of this expensive fire-fighting system.
annual losses are not by any means represented by the ann
destruction of property. In addition to the destruction
property and building materials, there is the annual tax t
is necessary for the upkeep of the fire-protection service,
then the additional tax that comes from the very high ra
of insurance; so that year by year the total annual lo
from fire, which he believed are entirely preventable,
represented by a great deal more than the two or three doll
per capita which is merely the value of the prope
destroyed.

It was regrettable that this property once destroyed wa
permanent destruction, for the lumber and other matters t
go into the buildings are permanently destroyed. In Amer
where the question of the conserving of natural resource
receiving so much careful attention, it was felt to be of
utmost importance to study the conservation of build
materials. There is now generally throughout America
tendency to revise the building laws for the purpose of ens
ing the erection of better structures, but of course it
impossible to make those laws in a large measure retrospecti
and there must necessarily exist for many years to come bu
ings which at best can only be described as tinder boxes.

Great conflagrations also occurred in Europe, as he
found out in his last European trip. At Antwerp t
summer he had seen a warehouse in which an enorm
quantity of cotton had been destroyed. The precauti
taken had been inadequate for the safe storage of such
material. Of course in America great conflagrations
occurred. The one in Chicago was perhaps only second
that in San Francisco. In Boston in 1872 and Baltim
in 1904 conflagrations of great size, which destroyed prope
worth millions of dollars, occurred; but these were only sm
in comparison with the large area of Chicago and S
Francisco.

In San Francisco the destruction of the water mains
earthquake left the city at the mercy of the flames, wh
literally swept the city, which was in its residential secti
almost entirely of frame construction. The failure of
water supply was due to the fact that none of the mains h
been laid on the mud, where they could have withstood
earthquake. Most of them were in the sand. This has n
been remedied by constructing a pumping station which w
be independent of earthquakes. San Francisco after the f
was as desolate a sight as one could see, and should ha
served as a strong lesson for the dangers of such constructio
Chicago was second to San Francisco in the extent of
fire-losses. In Baltimore the fire-fighting service from Phi
delphia, New York and Washington were practically pow
less, because in the extreme cold weather which prevailed
that time the water service was of little value. It is intere
ing to note that in the San Francisco fire it was estimat
that the profits of twenty years were destroyed in a fire
three days' duration.

It frequently happens that the walls of a structure a
standing after a fire, and people point to those walls as
evidence of the fact that the building has satisfactorily pass
the conflagration. But the buildings could scarcely be co
sidered fireproof if their interiors had been gutted and 90 p
cent. of the property destroyed. Sometimes the walls are
concrete, and after the fire are in good shape, and only requi
a renewal of the floors, doors, and windows and roof to ma
a habitable dwelling. In other cases the floors and colum
are fireproof, but the front walls, being of cast iron, a
destroyed, or the walls of brick fall down. One of the be
examples in America of the behaviour of reinforced concre
in a serious conflagration was the building of the Guaranto
Trust Company of Baltimore, and load tests were made
those floors after the fire by the building department, an
they were found to be amply safe under the ordinary regul
tions. In the destruction of the adjoining building oppo
tunity was afforded for the construction of a modern buildin
and it became necessary to tear down the rebuilt structu

ecause it did not fit in with the new structure, otherwise it as in very good condition.

Stone is very largely used, not only in this country and America, but all over the world, as an ornamental material, nd it is evident from the study of buildings where there have een fires of intense heat that the stone is almost entirely estroyed. It is usually found almost impossible to replace e ornamental character without rebuilding the structure tirely. The behaviour of granite and hard sandstones in re, which splinter and split, is ample evidence that the bject of natural building stones should be studied with a ew to determining their resistance to fire. The United tates Government have undertaken some studies of this nd, and they found that it made a material difference as how the stone is quarried in its fire resistance. They und that granite could be quarried so as to offer almost 0 per cent. greater resistance to fire in one direction than another direction; so that in the matter of ornamental ilding stones there is much to be learned in the manner in hich the stone is quarried from the point of view of its fire sistance. Of course in a building of this kind the destruc- n cannot be estimated. The mere fact that the skeleton mains is not very much consolation, and when ornamental rts are also structural parts carrying the walls, then of urse the construction seriously endangers the safety of the ructure, and when granite columns form the interior lumns of the construction their destruction is a matter of rious concern. If stone is to be used as a structural member a building it must be fireproofed, just the same as a steel mber should be fireproofed.

In nearly all the great conflagrations in America it was a quent sight to see buildings of steel which had not been operly fireproofed entirely destroyed. It is evident that nething must be done to protect that material, for while el may have great strength at normal temperatures it has tle or no strength at high temperatures. Then again it quently happened that the floor of a structure may be sonably fireproof and constructed properly, but the pports of the floor are cast iron or some equally bad terial, and the failure of the column to support the floor ses a collapse.

It is a striking fact that architects and people in general America regard burnt clay as an admirable fireproofing terial. In a large measure this opinion has been based the fact that small pieces of burnt clay when placed in a and made hot do not disintegrate when placed in the ter. But the clay is not used in that way. It is used in shape of a tile. During the process of manufacture it en happens that these tiles become cracked in the corners, when a column which is so fireproofed is subjected to the ion of the heat the unequal expansion of the outer face the tile, as contrasted with the inner face against the el, causes an expansion which the thin web at the corner unable to resist, and the tile and the web cracks. As a ult the tile is broken away from the column, and the tal column being exposed to the action of the heat col- ses.

In the construction of columns an attempt has often n made to fireproof them by binding around the column haps a metal fabric, and then plastering it. In the Fair- nt Hotel about 100 columns fell as a result of this kind fireproofing, and some of the floors settled as much as a t. Now there was no great fire in that building. The el had not been completed, and the only material there the lumber used in its construction, which was not a at amount. But the burning of this lumber was sufficient develop enough heat to buckle the flimsily constructed umns. In the destruction of such buildings one saw the y of evasions of the law.

It is quite general in a fire to find that where terra-cotta s have been used the lower web by reason of its expansion flaked off. Sometimes as much as 35 per cent. of the tiles failed so as to come off altogether, while a larger cent. perhaps are cracked so badly as to be able to be ed away with the fingers. In a case of that kind noth- can be done in the way of restoration, except by entire nstruction of the floor. Other objections are that in the ning these clay tiles become cracked, as also in the ham- ing while being fixed. Such cracks are plastered over; it is only under fire that their weakness is revealed.

The floor, of course, is an all-important part of the cture. If the column is reasonably fireproof it is neces- that the floor shall be fireproof also. The suspended ng, it was found in the San Francisco and Baltimore , acted as an excellent shield, and greatly increased the resistance of the floor above. Unfortunately, in carrying this idea ordinary gypsum or plaster is frequently used, and with a very flimsy anchor—the gypsum loses its life at a very low temperature, the anchor is destroyed, and the ceiling falls.

It generally happens that the roof trusses of a building are never protected. The upper ceiling is rendered reasonably fireproof, but the steel trusses of the roof are not protected, and as a result the roof becomes the entry for a fire from the outside. It is just as necessary to protect the steel work of the roof as it is any other part of a structure.

In most cities there are buildings of large size that are reasonably fireproof and monumental in their construction. But they are surrounded by fire traps. This is particularly true in large cities in America, where there are buildings extremely high, and which, if they were properly protected with metallic window frames and door frames and wired glass windows, would probably act as a barrier, but with unprotected plain glass and perhaps wooden frames the destruction of the tinder boxes surrounding them brings about the destruction of the contents of the large buildings, and then of the buildings themselves. It is not only necessary that the floors and columns of a building shall be properly protected against fire, it is also necessary for the exterior exposures to be protected. The destruction of windows leads to an easy access for the flames to spread from floor to floor, and so causes the entire ruin of the building.

In some cases where metal doors and windows of approved type were used and plain glass introduced in the windows, the glass simply softened and fell down, and so, of course, the barrier was of little value. On the other hand, when the window is constructed with metal frames and wired glass windows of approved type the glass often softens, but still stays in place and prevents the fire from gaining access to the building.

Personally, he believed that concrete was going to play a very important rôle in the question of fireproof construction in the future, and that the Concrete Institute of England and the concrete organisations of America had a very important responsibility and a very important task before them. They knew concrete to be reasonably fireproof. They did not know much about its properties or the methods of the construction from the point of developing buildings of the highest fire resistance. It was a fact in America that in a report of the various concrete buildings erected during the last five years, the owners of 23 per cent. of the buildings reported that they carried no insurance on the building themselves, that they merely insured the contents.

Now a building of concrete when properly constructed was the highest fire resistance, but unfortunately there is a tendency to design parts of it without providing any fire protection. It was unwise to say that concrete was fireproof, and did not need protection. It was just as necessary to provide fire protection for the concrete member in the structure as it is for a steel member, a wooden member, or a stone member. There is no doubt that different aggregates have different rates of expansion, and that these different rates of expansion cause a proportionate destruction of the concrete.

It behoved the members of the concrete organisations to study the question of the fire-resisting properties of concrete and the method of its construction, so that in the future the material would be applied to the very best advantage. By the study of such problems the whole world was benefited. In conclusion, Mr. Humphrey said he would like to pay his tribute to the work of the British Fire Prevention Committee. Its effect had been widely felt, specially in America.

Mr. Edwin O. Sachs, in proposing a vote of thanks, said they were extremely indebted to Mr. Humphrey for devoting one of his four evenings in London to give them that highly interesting talk. They were also indebted to him for the many instructive slides shown on the screen. The word "fireproof" was a most abominable misnomer, and had done more to check the progress of fire-prevention than anything else. Fortunately its use is now decreasing. In the States there had been debates about its use, and he hoped it would be given up in favour of "fire-resistance." The lantern slides went very much towards showing that the use of terra-cotta slabs as a casing was not to be recommended. The material was certainly out of place where true fire resistance was wanted. Nevertheless the employment of terra-cotta tiles for light partition work was extremely useful and suitable for any building which could be classified as "temporarily" protected as against "fully" protected. Taken all in all, there could be no doubt that for economy and practical utility properly designed and properly composed concrete affords the most practical fire resistance to be got at the present day. It would certainly be most welcome if among the subjects to be taken up by the Concrete Institute was an enquiry into certain phases of fire resistance which have not yet been entered upon. But reinforced concrete structural features require fire protection. A reinforced concrete beam with its metalwork protected perhaps with half an inch or one inch of concrete is not fireproof. For beams over ten feet span at least two inches of concrete are necessary. Where the fashion had come from of not protecting the metalwork sufficiently he did not quite know, though he was inclined to suspect France or Belgium. In some large warehouses he had recently seen at Brussels the concrete was little more than a coating. In the same building there were one hundred rolling steel doors of the most approved pattern, while over each door was a window filled in with plain glass, at once minimising the fire-resisting efficacy of the doors. In England as compared with the United States we have one very great advantage, in that we limit the cubic extent of our buildings. Until recently this was rigidly enforced. Now powers have been obtained for extending those limits to a certain extent. He would say as a word of warning that such powers should not be extended too liberally, for the law on that point used to be a great safeguard. Other safeguards in London were the limiting of the height of buildings and the splendid way in which the regulations as to party walls had been enforced. In this country they probably paid greater attention to the safety of human life than anywhere else. Many regulations existed for ensuring the safety of life (such as the provision of external staircases and so on), which all make for better protection as a whole. England had to thank the United States for a great many improvements connected with building construction of late years, such as the better types of fire-resisting floors and doors and for wire glazing.

Mr. E. Fiander Etchells, F.Phys.Soc., M.C.I., considered that the small loss of life in this country from fires was due largely to the provision of means of escape, apart from the construction of the buildings. The getting of fire protection for the contents of a building is so mixed up with the rental that absolute fire prevention is almost impossible. In all recent legislation it is recognised that even "fire-resistance" is only a relative term. The great care taken of life in this country might be due to the belief that one Englishman was as good as three foreigners any day.

Mr. W. G. Kirkcaldy, A.M.Inst.C.E., M.C.I., said the general idea that terra-cotta was an excellent fire-protection was evidently wrong. Concrete was far more promising as a material.

Mr. E. P. Wells, J.P., thought that structural metal work should be encased in three inches of concrete. Under no circumstances should plaster casing be permitted. The casing should be either concrete or brickwork. Such concrete should be of a very much richer nature than for ordinary work, whereas in many cases the concrete actually employed is of such a kind that it is practically impossible for it to be fire-resisting.

Sir Henry Tanner, the chairman, in closing the discussion, said he would like to add his thanks to Mr. Humphrey for the paper. He quite agreed with him on the subject of terra-cotta tiles, and the photographs had shown how very little they were to be relied upon.

Mr. Richard L. Humphrey, in replying, said that experiments in fireproofing were being made all over the world. The City of New York authorities required new systems of fireproofing to go through a preliminary test before approval. In almost every case the first test has resulted in failure, as defects revealed themselves which have subsequently been put right. In the casing for a reinforced column the important thing was not the thickness of the covering so much as the insulation of the material behind. If any heat is conducted or transmitted the casing can be of no use. In his opinion the most efficient protection of all was keeping the contents of a building in small units. In America they still had a great many bad things in their construction, and they looked to England for help in the solution of the problems.

WOMAN AS A DOMESTIC ARCHITECT.

A MEETING of the Camera, Sketch, and Debate Club of the Architectural Association (Ladies' Night) was held on Thursday, November 2, when the subject for discussion was "Woman as a Domestic Architect." Mr. Edwin Gunn, A.R.I.B.A., opened with the following short paper:—

Architecture is a great and difficult art, the mere scope and meaning of which not one in a thousand laymen, or perhaps one in a dozen professed architects, fully understands. The broader and truer meanings of the term as
relating to dealings with the masses of buildings and the
design to excite definite emotions in sensitive beholders ar
however, now more readily grasped than they were, owir
perhaps, to the frequent bandying of such phrases as "grar
manner" and "town planning," and it is commonly reco
nised by people sufficiently interested to care that ingenio
contrivance of detail is not architecture, though forming
part of it in some of its minor applications.

Ruskin rather unkindly said of Welby Pugin in one
his scathing denunciations of English architecture (whi
he did not understand), "Expect no cathedrals of him; b
no one, at present, can design a better finial." Continent
opinion seems to sum up the typical British architect
somewhat similar lines: "Expect no cities of him; but
one, at present, can design a better cottage." Even th
modest qualification has latterly been questioned more tha
once in current journalism. It has been freely stated th
all is not well with our domestic architecture, and the clai
of woman as the natural saviour of the situation have be
again and again advanced. I have not gathered that arch
tecture had much to do with the claims put forward, thou
the writers concerned seem to have thought so. They attac
really, from another point of view. Briefly, the argument
this—and I hope they will soon elaborate or develop the
pleas, as continual restatement has somewhat staled the
oft-reiterated cry—"Women alone should design house
because they live in them and understand their working
Or, as Mr. Robertson Scott, well known as a writer under t
pen-name of "Home Counties," puts it even more directl
"Structures which are to be lived in most of the time
women, and are to be wholly worked by women, are plann
by men, chiefly 'single men in barracks' of offices."

It will not do to push this line of argument too far,
we shall be committed to the principle that the criminal (
should it be the warder?) must always design his own ce
but, seriously, is there anything in this claim? Where d
man live? The cheaper class of (alleged) humorous pap
is perhaps responsible for an impression that his time
divided between his office and his club, but this can be d
missed as obviously untrue as regards the cottage-dwelli
class. And does woman so devotedly attach herself
home? Is her existence divided between the kitchen passa
and somewhere in the neighbourhood of the linen clos
Not to anything like the extent she would have us belie
Often she is fluttering about the West End, corrupting
taste and making herself envious and discontented by w
shipping the numerous ingeniously-misshapen creations
which the fashion of the moment decrees that she shou
clothe herself. Enough of this; it is a side-issue.

The assumption, however, that woman, while preserv
and cultivating all the domestic virtues, will yet find ti
to become a prolific designer of houses is, to say the least
it, amusing. For, observe, it is not the mere fact of be
a woman which fits her to design houses for people to l
in, but the fact of being a *domesticated* woman, and as
architectural business increases so her fitness to conduct
would automatically diminish—a state of things not
known with male architects, by the way. But even conced
the claims made, and allowing that woman might make
efficient designer of the domestic machinery of the ho
(reserving the right to object that this is a very minor p
of architecture), what is to prevent man from doing, or
prove that man has not done, the same thing as well
woman can hope to do? Instances to the contrary can
doubt be produced—kitchen ranges badly lighted, drain
boards for left-handed washers-up, no draw-off taps on up
floors, insufficiency of cupboards (I use the word with ba
breath); but is anyone bold enough to declare that the
tellect of man is incapable of satisfactorily grappling w
such very simple problems of arrangement, or that m
architects would have a monopoly of carelessness
stupidity? And, after all, is there not something nob
than a cupboard? I don't mean a wardrobe. A sense
proportion is the one absolutely essential quality of
architect—not alone in the sense of geometrical ratio betw
masses and parts and subjection of detail in subservience
the whole conception, but in the avoidance of any exagge
tion of certain components to the sacrifice of others.
instance, it is desirable to have good drains, but the arc
tect who designed his drain plan and fitted his house to
would not be committing architecture. An extreme instar
no doubt, but we are invited to let woman design our hou
on somewhat similar lines around the domestic offices.
sign in plan and section as practised by the abler of
domestic architects is something very much more than
mere fitting together of so much accommodation (includ

cupboards) to serve the needs of domestic convenience. But, again, is woman always so determined in securing convenience at all costs? The woman who "lives in the house" craving for cupboards denied by the unpractical male architect is quite a touching picture. But what of woman who lives in her dress craving for—not pockets, but a solitary pocket? Why? Fashion forbids! We know something of fashion in architecture—everything at present must be redolent of the days of good King George, to be followed by neo-Greek—but I see fearful visions of exaggerated fashions in architecture if woman once gets her head! We all know the mushroom, aeroplane, and other expensive forms of hat (practical, you will observe, in the perfect ease which is permitted their wearers when seated, say, in a railway carriage). Picture our domestic architecture if a fashion for roofs on a similar lavish scale but started, followed by a reversion to the toque or baby boy style. No; I don't think that woman can maintain the claims to that sweet reasonableness and hard commonsense in dealing with the minor conveniences of life which have been put forward on her behalf by interested parties. One feels that she would always be prone to become, to an even greater extent than man, the mere slave to an idea, before which cupboards, sinks, water supply, and possibly even roofs and windows, would have to retire if they did not conform.

Now, taking it as demonstrated that woman would be most likely to fall short of the high hopes entertained for her as a contriver of domestic convenience, what of her claims to success as an architect? Unfortunately, the "lady architects" who from time to time prevail upon journalists short of copy to print their wearisome effusions on the eternal topic, "cupboards," do not seem anxious to publish their designs, so that I am acquainted with no feminine building to which the test of critical examination can be applied. There was, indeed, a cottage at one of the early cottage exhibitions, but—— We must perforce rely on other evidence.

Woman has been fortunate in receiving tacit admission to a sort of pretension to "better taste" than man. Goodness knows how it came about—lack of self-confidence on the part of man, I suppose, or possibly a feeling that anything so unreal and inessential as Art was beneath his lordly notice. As far as I can gather, it largely depends on woman's displayed preference for the more delicate (*i.e.* washy) shades of blue and pink in decoration, a fondness for draping, and a passion for knick-knacks which converts the drawing-room (woman's sphere) into the most fussy and unsatisfactory room in the average house. William Morris, at least, knew better. "There are two things," he said, "about which women know absolutely nothing—dress and cookery: their twist isn't that way. They have no sense of colour or grace in drapery; and they never invented a new dish or failed to half spoil an old one." I do not think that I need labour this point. I am not anxious to prove that the average woman is less likely to make a successful architect than the average man—who makes a precious poor one—but that there is no evidence to show that she would be likely to make a better one.

Upon the physical aspects of the case I have not touched. I do not regard woman's obvious difficulties with excavations and scaffolding as really material or insuperable. Sir Christopher Wren was hoisted to the giddy heights of St. Paul's in a basket, and I am sure that this method of transport would commend itself to woman, who, I am given to understand, is the chief supporter, both directly and by nfluence, of such delightful inventions as the wiggle-woggle, toy wheel, and similar violent pleasures at our educative exhibitions.

I confess that when I rashly undertook the preparation of this paper it did not occur to me that the argument would be so one-sided. It was my intention to array the points for and against the probability of improvement in our domestic architecture resulting from woman's entry into that sphere. But at close quarters with the subject the probabilities have appeared to me to be all in one direction, and I shall be really grateful to anyone who will redress the balance.

The proposition which I shall ask to be allowed to submit to the meeting is: "That available evidence does not ustify the assumption that woman would improve on the domestic convenience of the average man-planned house." Before leaving this proposition to the animated debate which I hope it may provoke, I will briefly summarise the points which I consider vital.

1. If there is anything to fit woman as a better designer of liveable homes than man, it is her intimate and constant ouch with their working. This, I fear, is not so intimate and constant as it was, and in the case of a successful professional must become still less so. 2. In any case the needs are relatively simple, and the man who cannot grasp them will certainly fail to grasp the more complex needs of the larger problems of architecture, and hence be a poor architect—and there may just as well be poor woman-architects. 3. Evidence in the spheres in which woman already holds free sway tends to show that convenience is the last consideration entertained in design.

Miss Cohen said that her feeling on the point of women architects was that a woman's knowledge would be specially useful in the provision of labour-saving devices. Anything which tended to a saving of manual labour ought to be welcomed, and in such matters women were the best guides. Again there were a great many places which now lacked proper cooking appliances, good sinks, and storeplaces sufficiently big for such food supplies as must be bought in fairly large quantities if economy was to be practised. Another common fault was the designing of windows with numerous small panes which, however nice they might look, involved difficulties in cleaning; others again would not open. Fireplaces were another frequent fault, and rooms were not properly ventilated. When visiting a consumptive sanatorium recently in the Lake Country, the Matron had told her that, beautiful as was the air in the neighbourhood, most of the patients were natives, owing to the fact that so many of the bedroom windows in the cottages would not open. Then present-day cottages were often neither light nor airy. These and other faults were in man-designed houses. Personally she liked to think there was no sex in architecture, it being merely a case of a good architect and a bad architect, whatever the sex might be. Mr. H. G. Wells, after setting forth in "Kipps" many of the faults of a London house, makes his character conclude: "It is having a house built by men, I believe, that makes all the work and trouble." The question whether a woman could design Westminster Cathedral was beside the point. But she held that in domestic work her experience ought to make her supreme. On the comfort of the home depended the welfare of the nation, and therefore its designing was a matter of vast importance. A curious point came to her knowledge in connection with a garden suburb. In one of these it was absolutely impossible if anyone died to get the coffin upstairs. That was a practical fact that had never been thought of. Of course she did not want to argue that a woman would have necessarily thought of it either. In America women in large numbers were doing very well as architects, being taken as pupils by practising architects and allowed to specialise in domestic work. So far as internal planning went and the meeting of domestic requirements there was, she thought, a great province for women architects.

Mr. H. W. Brittan contended that most of the remarks of Miss Cohen were not levelled against the architects of to-day, but against defects arising out of a lack of education in past generations. The type of house alluded to was not designed by architects, but by builders. He did not care for the idea of lady architects.

Mr. A. G. R. Mackensie thought the matter was one for serious consideration. There were a great many things which women naturally knew more about than men did; and it seemed to him that the person who knew a thing from practical experience knew it better than a person who knew it merely because he had been told about it. He had to confess it had never occurred to him before Miss Cohen mentioned the point that it was more difficult to clean small windows than large ones. That was an excellent example of where women have the advantage over men. It was a very sweeping assertion to say that women ought not to take up a specialised profession. In the case of painting and sculpture there could be no doubt that women have already won their place. It had been said that man still holds his own at the very top; but even if that was so, there are a great many women far ahead of men in the lower grades. There are heaps of women who he was certain would have made far better architects than some men if they had been properly trained.

Mr. J. D. Crace suggested that a great deal more might have been made of the point about the professional occupations of American women. Some fifteen years ago there was a great iron railway bridge being built to cross an expanse of water in the neighbourhood of New York. During the course of the contract the engineer died, and his sister took his place and carried it through. That incident proved that women were capable of carrying out extensive works. He did not think that architecture pure and simple opened up a very promising prospect for women. Their advice certainly might be good; but there were a great many difficulties in the way of supervision on a large scale. There were, of course, many who with training could build a very excellent cottage. But when one came to architecture he believed there were very few who could carry it out with the active superintendance and the knowledge of the trained man. To do so was almost a physical impossibility. As regards the presence of fixed windows, he had lived in a house built about eighty years back, where the windows did not open at all. But this was probably done purposely in order that they should be strong enough to resist the violent gales. What men architects as well as lady architects would do well to remember was that the foundation of all training was a good general education. Education should be carried a good deal further than is usually the case at present, though a professional could begin to specialise at a very early age. On the subject of the motion he did not feel prepared to give a vote either way. Women with a special capacity would, he believed, find an opening. But he thought they would be wiser to have in view not the erection of great buildings, but the design of interior fittings and of the decoration. But they could not do even the latter successfully unless they had had an architectural training.

Mr. F. B. Last thought that the question before the meeting was not quite as it ought to be. It should not be a matter of rivalry between the two sexes, but of co-operation and of a combination of the two points of view. The fact that women spend so much of their time in houses did not necessarily mean that they were the most qualified to design them, for having one's nose right on to a thing was not the best way of getting to know it. There were certainly bad as well as good men architects. It seemed to him that it was impossible to get a definite answer to the proposition and to say that woman was likely to be a better or an inferior architect to man.

Mr. A. L. Snow thought that the chief conclusion they would arrive at was that a woman's sphere was more in the nature of a consultive than an active one. In the former she was likely to achieve the best results—if one excepted her possibilities as a client. As a matter of fact, he would like to know how far woman was responsible for the present condition of planning. Every architect had to follow the directions of his client, and these were not usually given by the man, *i.e.* the one who pays. The size of the drawing-room suggested a woman's influence. In his opinion women would make much better garden architects and decorative designers. The busy architect had not enough time to be able to devote attention to either of those matters. In that field there need be no competition against men.

Mr. L. Jacob thought that while a woman's ideal sphere was to be a ministering angel, yet, as the sex outnumbered the men, some must earn their own living, and therefore it was well that they should be trained to do it in a profession. She would do well to co-operate with man. He had seen it stated in a magazine that as the home was a woman's place of business, things would go a great deal better if men were only as careful about their wife's place of business as they were about their own. If a man would take over the housework for, say, a month, he would find out many little things that he did not know now.

Mr. A. H. Belcher also supported the idea that women should look after the decorative finish of houses and also garden architecture, as being much more in their sphere, if they had any spare time. His fear was that they would neglect their womanly duties. Women's help ought certainly to be of great assistance to men, but it did not follow that they should be architects. The more information an architect can get the better. There were too many practical difficulties attached to architecture for women to be able to follow it.

Miss Cohen said it was all very well to say that women ought to stay at home. But were those who so argued ready to keep their unmarried sisters and the women who had no one to support them? Not to approve of the idea because there was not evidence of its success was unfair. She would say, give women the opportunity of proving themselves.

Mr. T. L. Dale suggested that when man was left to himself he did not require a house. Directly a woman appears on the scene she must have a drawing-room, and then a kitchen, and so the whole structure is built up. If ladies did not like their houses it was very much their own fault. The best thing for an architect was to take woman into his confidence and make her partner. Personally he could not see any reason except the obvious selfish one why women should not be architects. It was only jealousy that made architects stand up against the idea.

Mr. A. E. Bullock thought that, given the right training, women could undoubtedly become very good architects. A quantity surveyor he knew trained his wife and daughter i his business, and they did it so well that they practicall ran it. Where a woman's forte lay, however, was in th artistic side of decoration and perhaps of planning.

Mr. C. G. Boutcher was all in favour of co-operation Ladies undoubtedly had a far better knowledge of domesti matters than men. The best way out of the difficulty seeme to be for an architect to train a girl pupil and then to marr her.

Mr. Stanley Hamp, in concluding the discussion, quit agreed that women could assist in domestic work. There we details which men had not the capacity to follow. But whe they came to consider larger schemes she might fail. Th peculiar construction of a woman's mind justified one i assuming she would make a better domestic architect tha anything else. He hoped they would not have many lad architects, because already there were too many male ones There were business women who seemed quite as capable a any man. But he thought women ought to stay as domesti architects and not to enter any larger field.

Correspondence

[The Editor will not be responsible for the opinion expressed by Correspondents.]

The Royal Institute and the Society of Architects.

Sir,—There appears to be some misunderstanding amon some of the members of the Royal Institute in regard to tha portion of the Society's annual report in which it is state that the Council of the Royal Institute propose to make a application to the Privy Council for a supplemental charte in order to give them the necessary powers to enter into th agreement.

It did not occur to my Council in drafting their annua report that any amplification or explanation of the foregoin statement of fact was necessary, as it was not anticipate that the members of the Royal Institute, or any one els would not realise the obvious fact that any proposals whic may be agreed upon between the Councils of the Roya Institute and the Society must in each case be subject to th consideration and approval of the general body of th members before any final settlement can be arrived at.

I have not had an opportunity of consulting my Counc on the matter, but I am sure they would be extremely sorr to think that any misunderstanding on this question coul possibly arise. Will you, therefore, kindly allow me to mak it perfectly clear that proposals for a new charter and by-law are being considered by the Council of the Royal Institut with a view to laying them before the general body, and tha they will also, in due course, be laid before the general bod of the Society.—Yours faithfully,

C. McArthur Butler, Secretary of the Society.
November 6.

Australian Federal Cspital Competition.

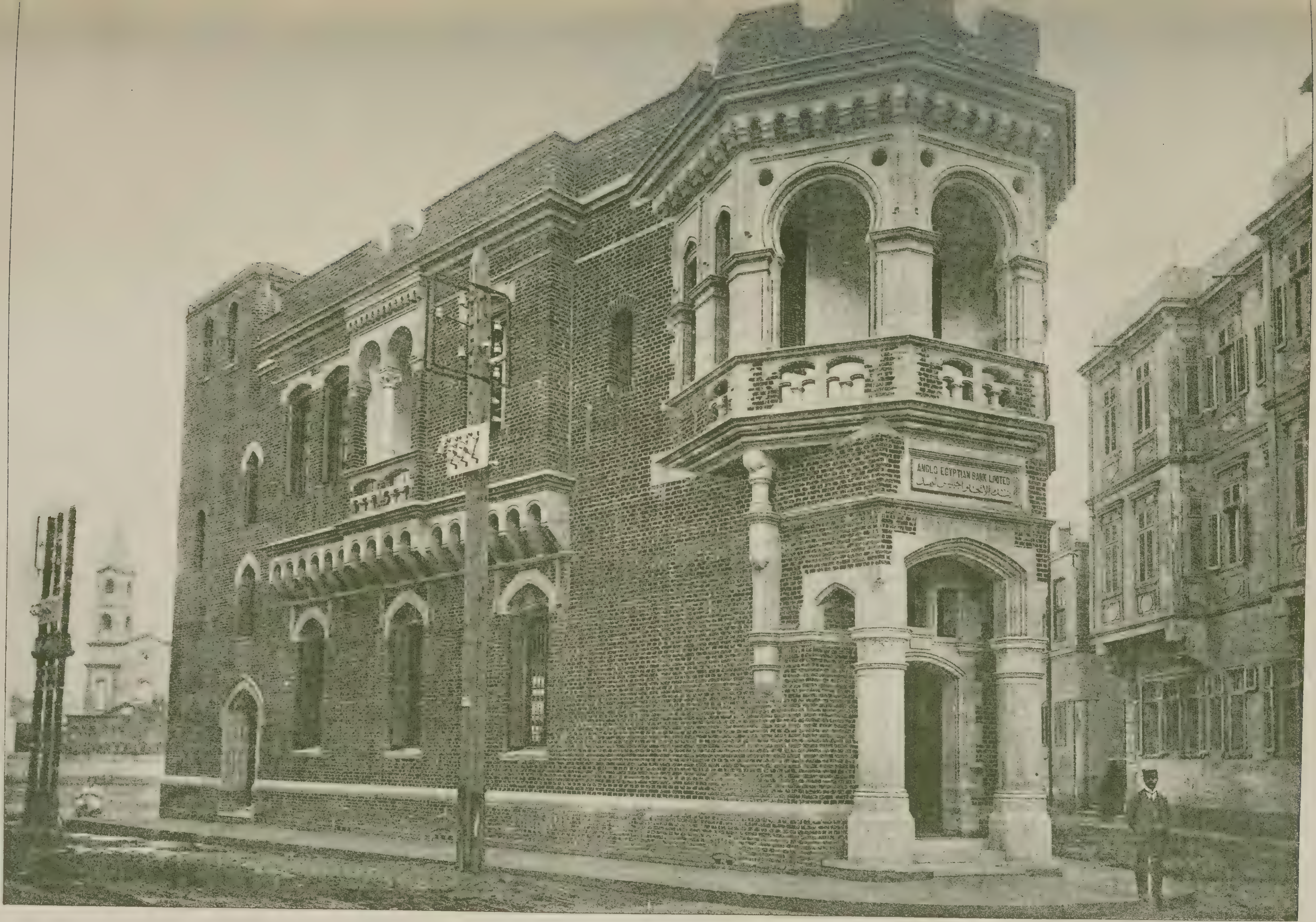
Sir,—Members and Licentiates of the Royal Institute c British Architects are requested not to take part in the abov competition.—By order of the Council.

Ian MacAlister, *Secretary.*
Royal Institute of British Architects.

Mr. Norman Thorp, A.R.I.B.A. (of Messrs. T. E Watson & Norman Thorp), was on Saturday last presente at the twenty-fifth annual gathering of the Elstonian Ass ciation with an illuminated address, an antique Sherato bureau, and a spirit case in recognition of his work as Cust Rotulorum of this association, formed of past scholars c Elstow School, Bedford.

The Liverpool Cathedral Committee on Monday accepte the designs of Mr. Gilbert Scott for the carving of the porc to the Lady chapel. The cost of the porch and decoration i being defrayed by the children of the diocese. The design i the gable is to represent Our Lord as the Good Shepherd wit a boy on one side and a girl on the other. Lower down fou figures are to be carved representing Samuel with a lamp David with a sling, a boy with five loaves and two fishes, an Timothy with a Bible. The Financial Committee reporte that there were sufficient funds in hand to complete the choi vestries, chapter-house, and Lady chapel, but that the now required to raise £70,000 to build the first of the trar septs, which will increase the seating accommodation to 2,50

The Architect, Nov: 10th 1911.



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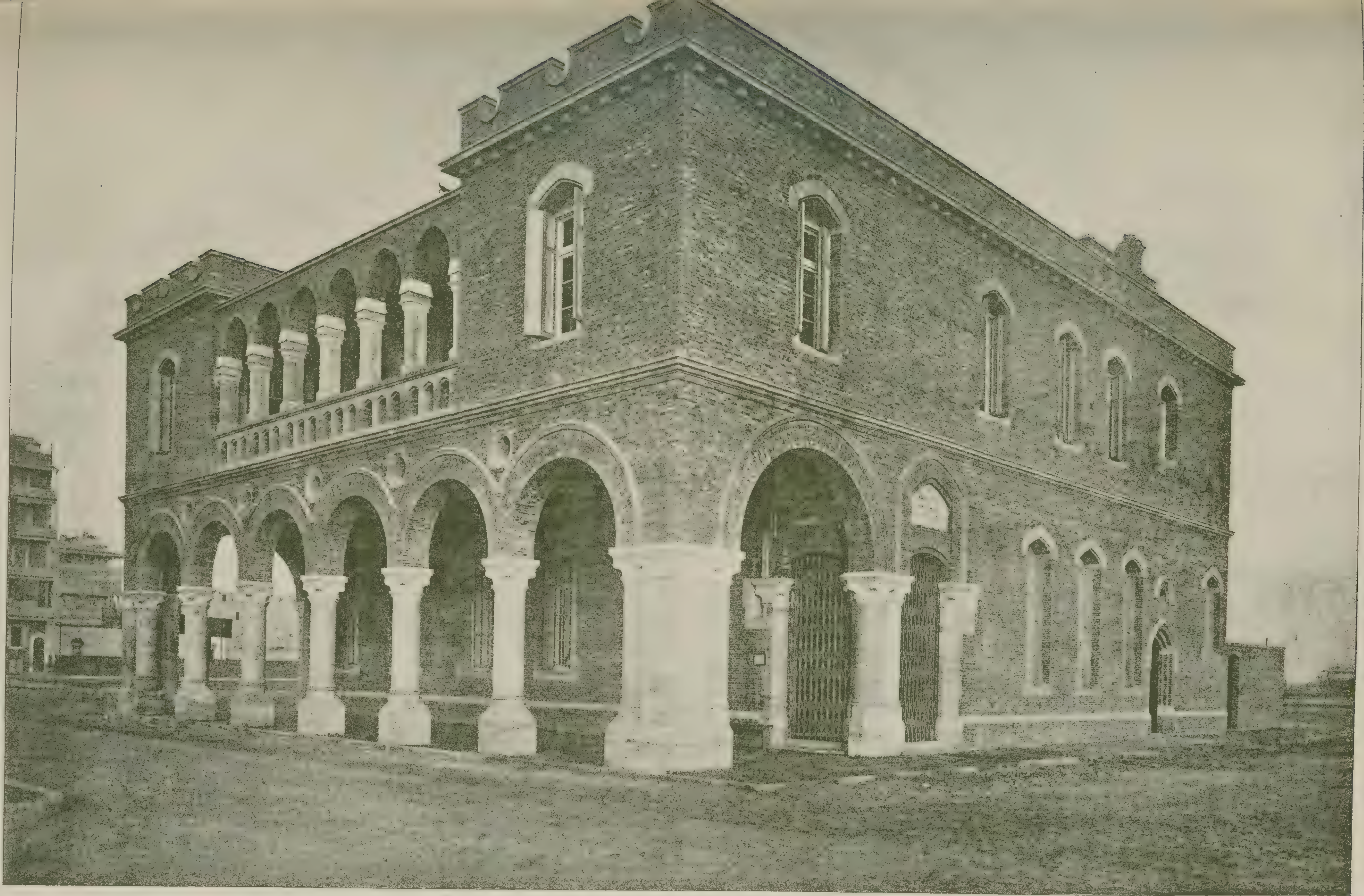

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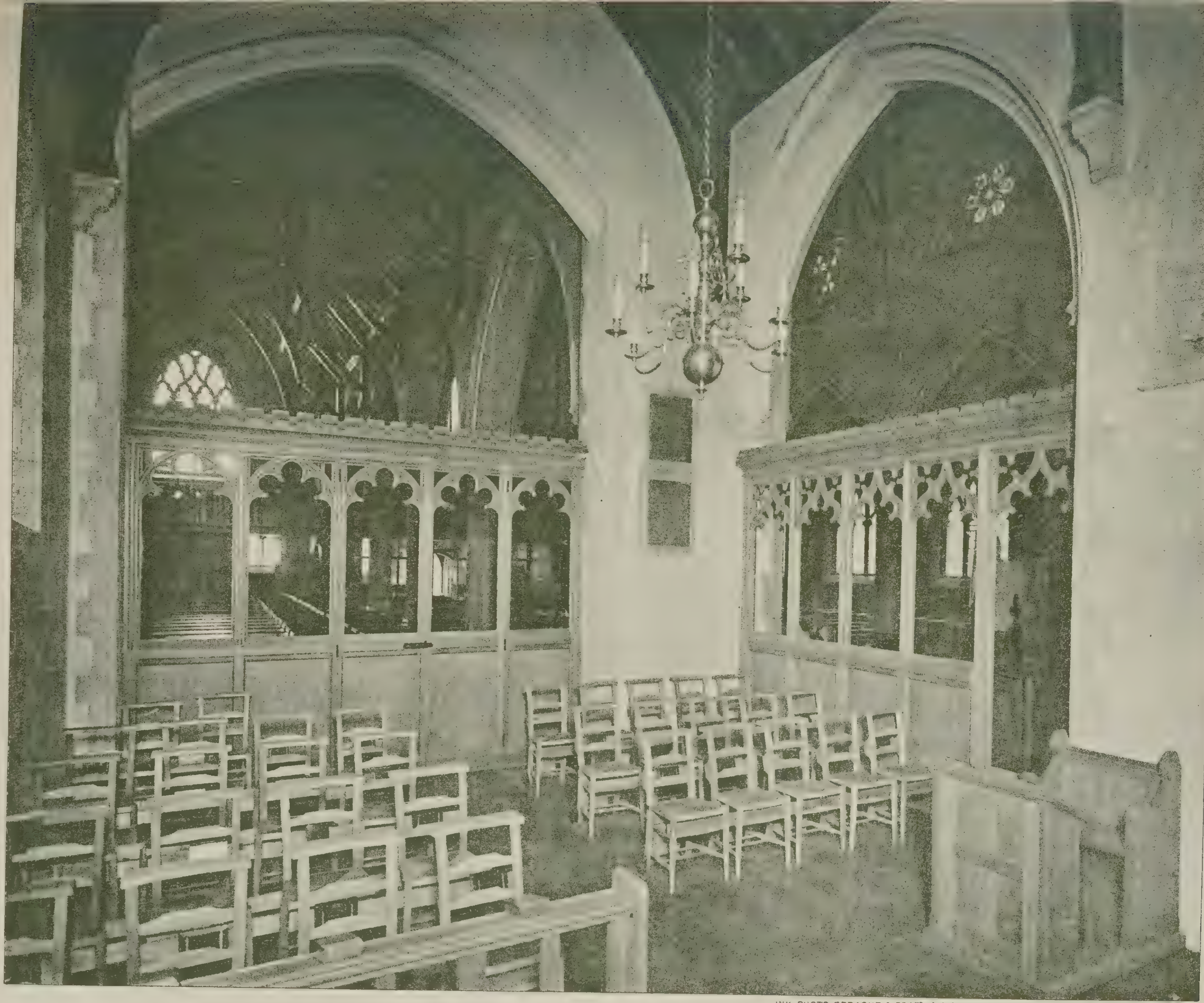

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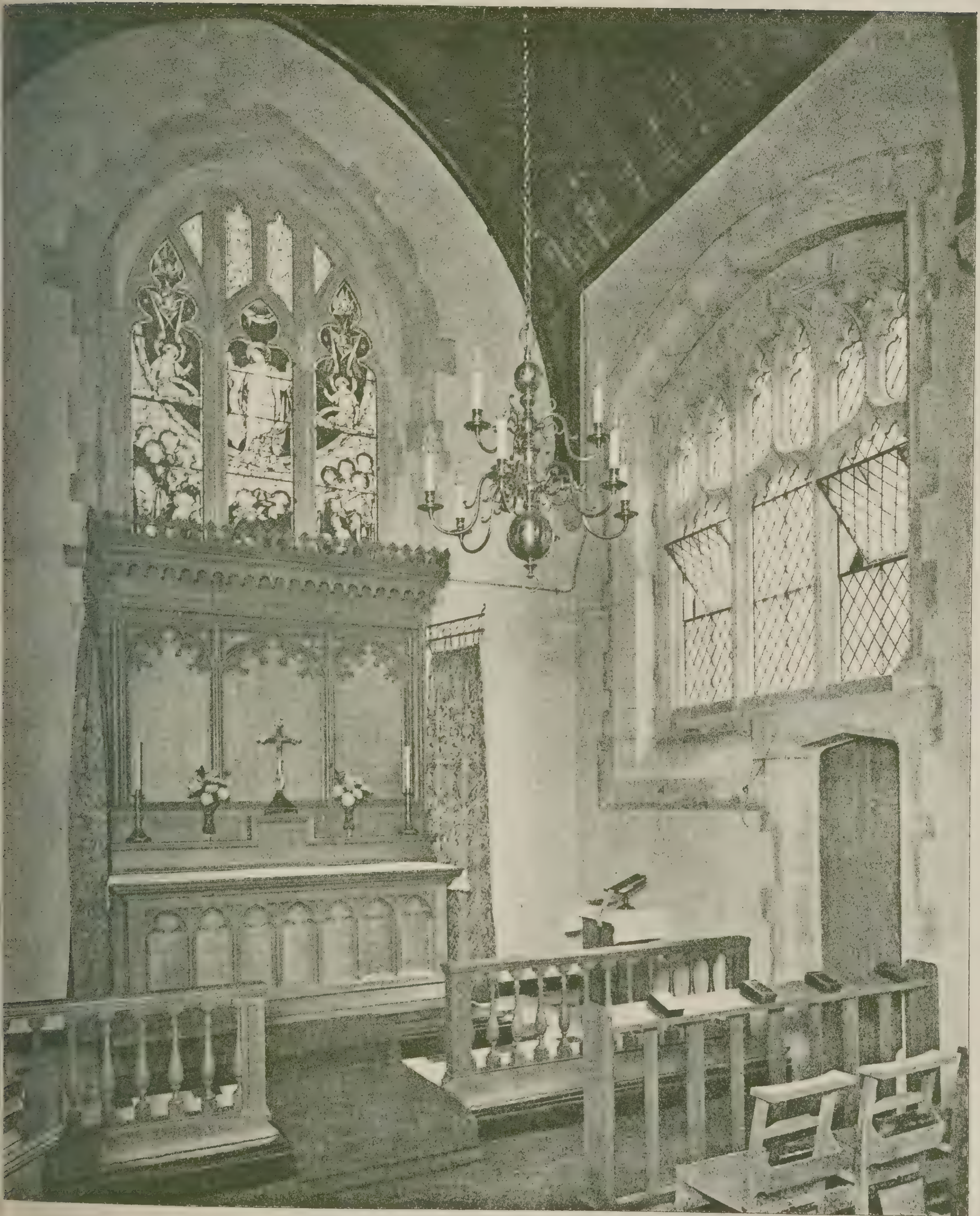

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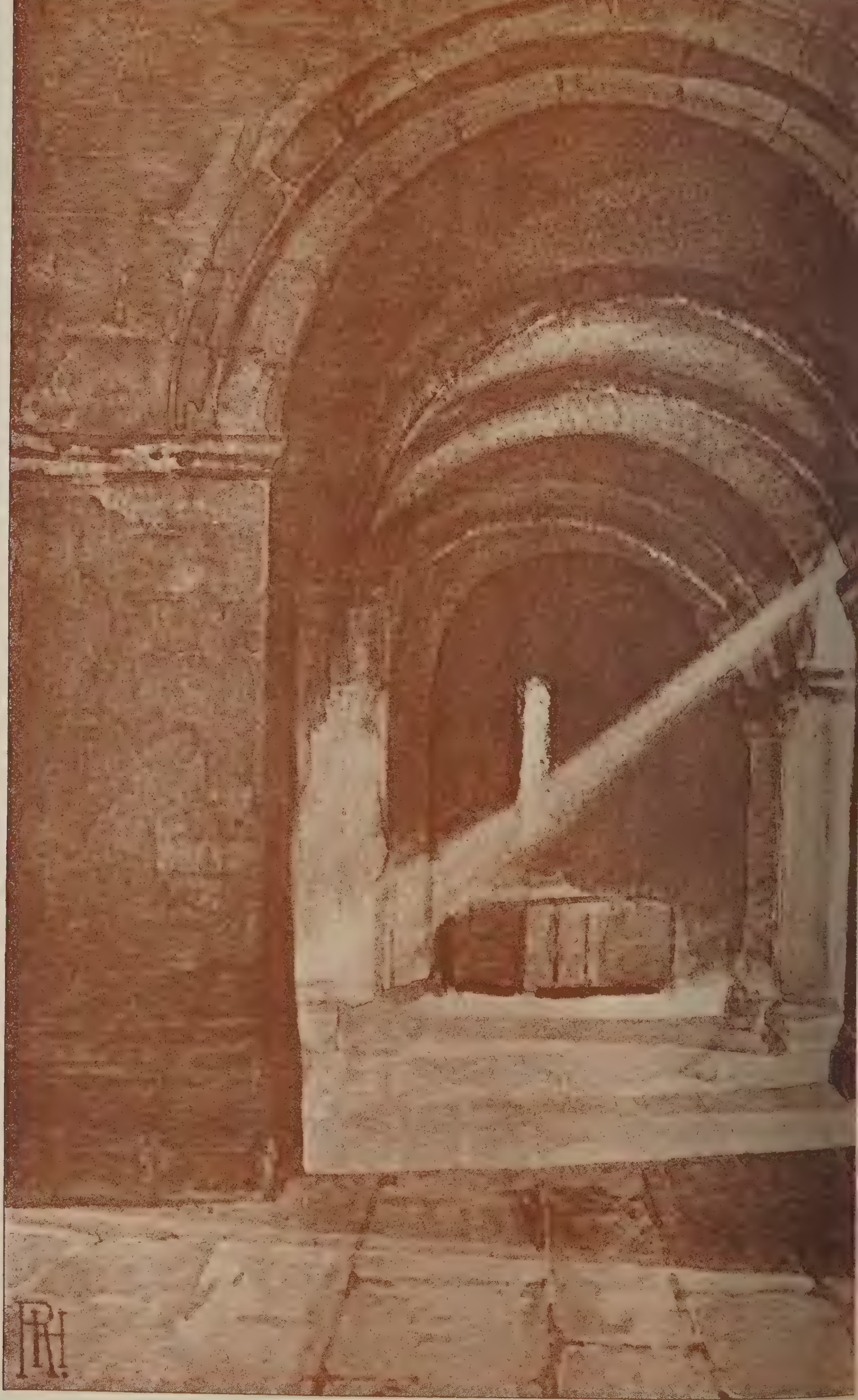

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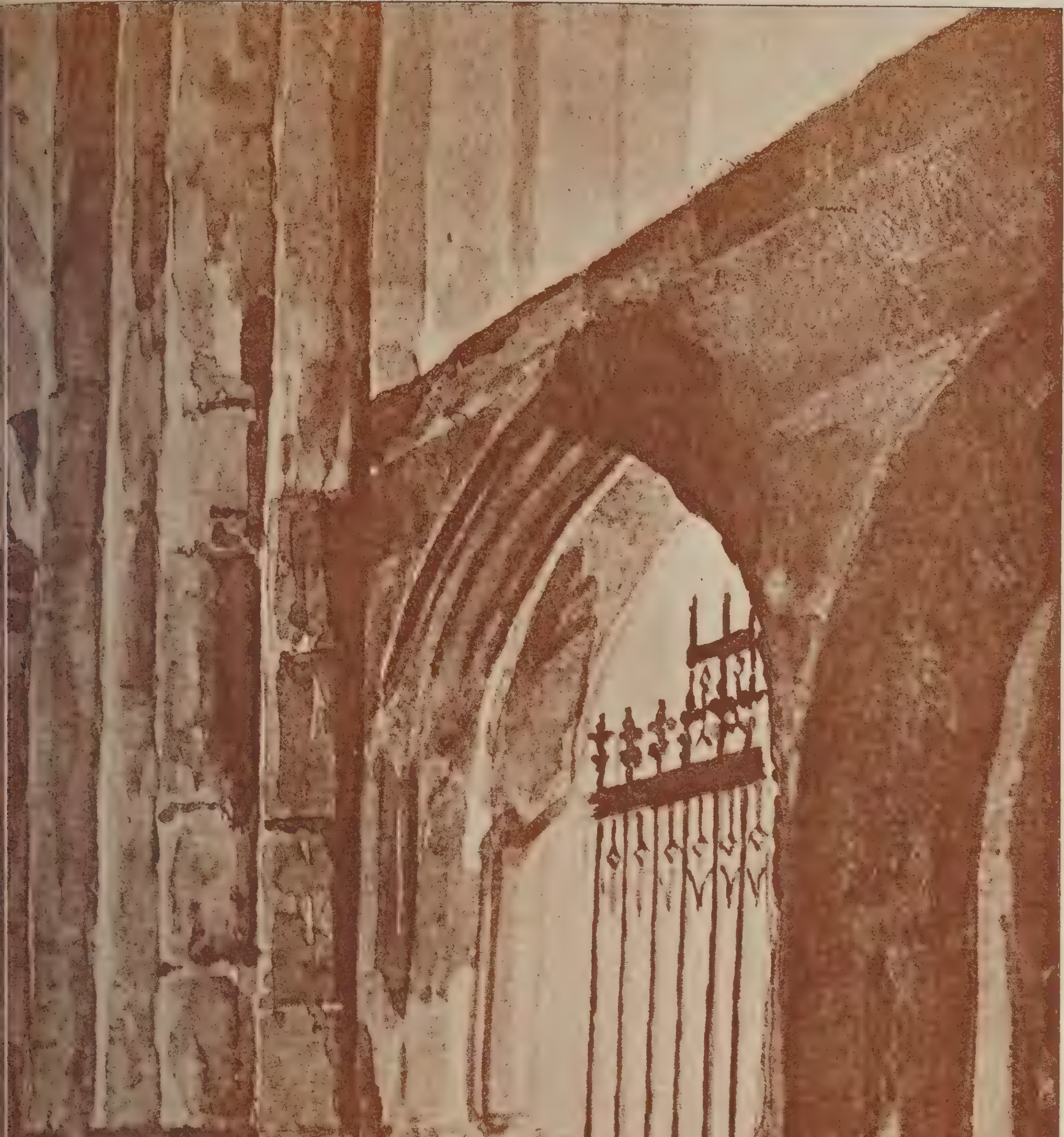

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& MEASURING CLUB.

The Architect.

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FORTHCOMING EVENTS.

Saturday, November 18.

Aberdeen Architectural Society : Paper on "Structural Ironwork and Steelwork for Architects," by Mr. Harbourne Maclennan, at 7.30 P.M.

Monday, November 20.

Royal Institute of British Architects : Paper on "Modern French Sculpture," by Mr. H. Heathcote Statham, F.R.I.B.A., at 8 P.M.

Liverpool Architectural Society : Paper on "The Architecture of Bath," by Mr. Mowbray A. Green, F.R.I.B.A., at 6 P.M.

Tuesday, November 21.

Nottingham Architectural Society : Paper on "Reinforced Concrete Construction," by Mr. H. Burke, at 8 P.M.

Wednesday, November 22.

Northern Architectural Association : Students' Meeting at 7.30 P.M.

Manchester Society of Architects : Paper on "The Contrasted Development of Paris and Vienna," by Mr. P. Abercrombie, at 6.30 P.M.

Thursday, November 23.

Architectural Association : Conversazione at 8 P.M.

Friday, November 24.

Glasgow Technical College Architectural Craftsmen's Society : Paper on "Town Planning," by Mr. T. G. Gilmour, at 7.45 P.M.

CIVIC ART.

WHAT distinction is there, if any, between civic art and town planning? Such may readily be our nquiry when we hear the term "civic art" used for he first time. The answer may be found in the magnificent volume* bearing the title which we are considering, and given to the world by Mr. Thomas H. Mawson, Hon. A.R.I.B.A., whose reputation as a landscape gardener, or, perhaps we should rather say, garden architect, to-day world-wide. If, as is now generally recognised, he garden should be the subject of architectural design, nd the combination of more or less building with planting, there would seem to be still more reason in the lanning of a city for the tempering of the preponderance f building with some liberal incorporation of gardening, both for the sake of health, by the provision of open space nd oxygen-makers, and for the greater amenity of the ity, which in itself results not only in pleasure but in healthiness of body and in the increase of mental fficiency of the citizens.

In the planning of a city it might be possible to restrict ne's outlook to the consideration of traffic facilities and ygienic conditions, and to call the result town-planning, ut when we begin to talk of civic art there is immediately connoted the inclusion of beauty amongst the hings that matter in the planning of a city or town. And nasmuch as the increase of the amenity of a city by the nclusion of beauty makes, whether consciously or subconsciously, for the augmented mental and bodily health f the citizens, we may justly regard this factor as roperly comprised within the domain of hygiene. Thus ven if we conceive that town-planning is limited to the onsideration of the convenience and health of the townspeople, we should still be forced to admit that, as their ealth demands, for its fullest development, beauty of environment, there is no real difference, in essence, between town-planning and civic art. But inasmuch as the term "civic art" suggests the element of beauty, which herwise might possibly be overlooked as an important adjunct of hygiene, we may well follow Mr. Mawson in th designation he has adopted.

Whilst our author defines the primary desiderata of paramount importance in the essential qualities of a modern city as Circulation (or traffic facilities), Hygiene and Beauty, and places their relative position as "firstly, circulation, which may be said to represent two-thirds of the anatomy of the subject, having to do with transit facilities, whether above, below or on the earth; secondly, hygiene, which may fittingly be likened to the lungs, sinews, and muscles of a city; thirdly, beauty, or the comely external presentment, including also expression, which must always be superimposed on the two first and more practical considerations," he devotes by far the greater amount of his space to the various means by which beauty may be incorporated in the design of a city.

Mr. Mawson explains three main schools of town-planning characterised respectively by the use of the chessboard or gridiron plan, the radial or web plan, and the informal or short vista plan, but he has omitted to mention yet another type, which is essentially of English and quite recent introduction, the pretty pattern plan, which though formal follows neither the gridiron nor radial method, but demands a symmetrical disposition about an axial line of roads and spaces irrespective of contours and more or less oblivious of natural features and dominant lines of traffic, at least to the extent that if a main artery of circulation is imperative on one side of the axial line, a corresponding road is provided symmetrically on the other, though it leads from nowhere to nowhere. The introduction of this type of plan is the direct result of modern competition designing, in which, for success, it is essential that axial lines and symmetrical disposition should produce an apparently well-ordered plan. The fallacy of the type in town-planning results from the truth that towns at present are rarely viewed from an aeroplane, but that their vistas are almost entirely seen only from the ground level. We might almost, from an inspection of Mr. Mawson's own designs, as, for example, that for the Carnegie Dunfermline Trust, formulate yet a fifth type of town plan, the diamond, or gridiron intersected by many diagonals.

Both as a gardener and as an advocate of beauty in civic art, Mr. Mawson naturally gives much space in his book to park systems and parkways. A park system, he defines as a chain of parks, gardens and open spaces connected by boulevards or parkways, arranged according to a comprehensive plan and extending from the city into the open country, the object being to secure a continuous through route under leafy canopies, or across beautiful green lawns or naturally wild common reservations. We are told that there are two distinct recognised systems of park development, the radial system and the ringstrasse or encircling boulevard, and our author informs us that, save in exceptional instances, the radial system is the soundest and most in harmony with town growth and expansion.

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* *Civic Art : Studies in Town Planning, Parks, Boulevards and Open Spaces.* By Thomas H. Mawson, Honorary A.R.I.B.A., Lecturer on Landscape Design at the University of Liverpool. (London : B. T. Batsford. 50*s.* net.)

Somewhat related to the question of park systems is the matter of town gardens, which may often form links in the chain. Of these features our author acknowledges the superiority in Continental examples over those in our own country. From town gardens we pass to the consideration of public monuments and street equipment, fountains, lampposts, and other adjuncts.

The relation of the property owner to town development furnishes the author with material for a chapter, and he discusses at length the operations of the Housing and Town Planning Act, with especial reference to the collaboration of private property owners and local authorities. The advantages of systematised and comprehensive town-planning to the property owner are fully and lucidly explained, and the influence of local circumstances on the provision of large or small plots, the proportion of road area to building land, the arrangement of property of different classes, the control of designs and other practical points of detail are well and thoroughly discussed.

Not the least interesting part of the book is the description of many schemes by Mr. Mawson for the improvement of various towns and cities in Great Britain, which are admirable object lessons for the student of civic art, whilst the lavish profusion of charming illustrations of many of the best productions of Continental designers tends to make the volume an indispensable fountain of information and instruction to all who are practically concerned with town-planning, whether as designers, administrators, or property owners.

NOTES ON BOOKS.

"Small Country Houses of To-day." Edited by Lawrence Weaver. (London: Country Life: George Newnes, Ltd. 15*s.* net.)

The collection into one volume of a series of monographs or individual examples of the small English country house of to-day affords an opportunity of making a fair estimate of the amount of thought and artistic feeling that is being put into their work by English architects at the present time. The judgment that has been exercised by Mr. Lawrence Weaver in the selection of the examples thus assembled has resulted in a high level of excellence being maintained in the character of the designs which are presented as a microcosm of modern English domestic work, whilst a generous catholicity of view has led to the inclusion of a great variety of treatment of many classes of material by a number of different architects. It is needless to say that, as with the publications of *Country Life* in general, the book is amply illustrated with excellent photographs, the value of which to the architect is greatly enhanced by the inclusion of the plans of the houses chosen and the discriminating criticism of the designs which for the most part has been supplied by Mr. Weaver.

"Piranesi." By Arthur Samuel. (London: B. T. Batsford. 12*s.* 6*d.* net.)

It is not surprising that Mr. Arthur Samuel, an enthusiastic collector of Piranesi's etchings, should have desired to know more of the history of this wonderful man and his son Francesco. The only wonder is that he should have had to collate the information for himself from a multitude of sources instead of finding it ready to hand in a biography written nearer the time of the subject. For Piranesi has been even during his lifetime and from then onwards ever recognised as one of the greatest of etchers who have found their theme especially in the representation of architecture. Having collected and brought together in a pleasant and readable form the scattered facts of the life of Piranesi, our thanks are due to Mr. Samuel for offering them to the public. We can even forgive the enthusiasm of the author in his subject for his contention of a higher place in eighteenth-century design than is perhaps his due, when he claims for Piranesi that to him should be accorded the credit that has usually been bestowed upon Adam, Sheraton, Chippendale, and Pergolesi for their designs in furniture. The span of life of Giovanni Battista Piranesi, A.D. 1720-1778, coincided with a passion for the antiquities of Greece and Rome, of which the Dilettanti Society founded in 1733 was a manifestation, and on the wave of which Piranesi rode to fame and success. It is scarcely, therefore, wonderful that a coincidence of detail should be recognisable between th designs of many artists of the mid-eighteenth century, sinc all who desired to be in the fashion were looking toward the same sources of inspiration. Waves of fashion are amongs the most consistent features of architecture and architectura design in all periods of history, and we might as well sa that in our own time Hare, Gibson, Russell, and a host o others were copying Belcher, as assume that Adam an Chippendale were copying Piranesi because of a resemblanc of detail in their work. Mr. Samuel throws an interestin light on the trade in old masters and antiquities, even in th eighteenth-century days of the cult of the ancient, in hi description of the proceedings of Hamilton and Jenkins an of Francesco Piranesi. The book is adorned with reprodu tions of some of Piranesi's works, and although these suffe from very considerable reduction, particularly in colour, the are sufficient to give an adequate impression of the genius Piranesi as a draughtsman, a designer, and an expone of the spirit of classical design.

"American House Building in Messina and Reggi An Account of the American Naval and Red Cross Com bined Expedition, to provide shelter for the survivors the great earthquake of December 28, 1908." B Reginald Rowan Belknap, Lieutenant-Commande United States Navy, late Naval Attaché to the Americ Embassy at Rome. (New York and London: G. Putnam's Sons. 7*s.* 6*d.* net.)

An interesting account of the erection of about thr thousand small wooden houses, the material for which w contributed by the United States Government and t American Red Cross, shipped in five steamer-cargoes fr New York and New Orleans, and the greater part of erected into houses, ready for occupancy, under the directi of an American construction party headed by Lieut.-Co mander Belknap. The story of the difficulties encounter and of the skilful organisation of very raw material in labo by which they were overcome, makes instructive reading, a if the resulting buildings can lay no claim to beauty architecture, they at least are a tribute to American ener and hustle in providing the essentials of shelter and comf in as short a time as possible.

"An Analysis of the Church of St. Mary, Cholse in the county of Berkshire." By F. J. Cole, D.Sc. Oxo Professor of Zoology, University College, Reading. W twenty-three plates. (Oxford: R. H. Blackwell. Lo don: Henry Frowde. Reading: G. A. Poynder. 5*s.* ne

This is one of the volumes issued in accordance wit scheme for the publication of studies dealing with particu aspects of local history initiated by the Council of Univ sity College, Reading. The *raison d'être* of its product is, therefore, local history, and as an example of how s study should be prosecuted and facts distinguished fr traditional error the volume before us is an excellent mo But the church of St. Mary, Cholsey, possesses someth more than merely a local interest, chiefly from its pl As it now stands, Cholsey church is on plan a Latin cross w long narrow nave and chancel, and both aisleless, north south transepts, and a central tower. The nave and transe are of twelfth-century date, the chancel a thirteenth-cent substitution for the earlier building. Dr. Cole has pro by excavation that the north and south transepts origin had semi-circular apses on their eastern walls, and in that the Norman chancel was, as is most probable, apsidal. Hence we have here an example of a tri-a parish church plan of a type not uncommon on the C tinent, and probably, in our opinion, more general in own country than is usually supposed. There are m points of detail in Cholsey church, particularly in thirteenth-century work, which are interesting and inst tive.

"Great Engravers." Edited by Arthur M. Hi Albrecht Dürer, his engravings and woodcuts: Watte Boucher and the French engravers and etchers of earlier eighteenth century: Andrea Mantegna and Italian pre-Raphaelite engravers: John Raphael Sn and the great mezzo-tinters of the time of Reyno (London: William Heinemann. 2*s.* 6*d.* net e volume.)

In these charming little volumes we have the result o interesting experiment by the publisher of printing from h tone blocks on an unglazed paper especially made for the purpose, and obviating the unpleasant reflection of a glazed surface. The experiment certainly effects its object of avoiding reflection, but the paper has a softening effect on ll reproductions which, though admirable in the presentation of work characterised by strong contrast, as in the Albrecht Dürer volume, the Mantegna, and most of the Watteau, where line is the predominant element of the drawing, rather too much accentuates the softness of mezzotint and other engravings in which tone is the means of xpression. As an introduction to a sound knowledge of the different schools of engraving, the varied technique of en- ravers and the *cachet* of individual artists, these inexpensive handbooks are of the highest educational value, a value which s enhanced by the lucid exposition of the historical facts and methods of work in the life of each artist-engraver by which ach volume is prefaced, whilst for those who, having ob- ained from these publications the rudiments of knowledge, esire to extend their studies further there are provided xcellent bibliographies. In these days of prolific output f illustrated periodicals and volumes, it is of high im- ortance that the public should have an opportunity of ducating their taste to a correct appreciation of what is ood and what is bad in black and white, and this education an be no better obtained than by the study of the works of reat engravers, with which acquaintance can now be so leasantly and easily obtained from these volumes.

“Hints to Students and Amateurs.” By Louise opling, R.B.A. With the preface by Sir William Blake ichmond, K.C.B., R.A. (London: George Rowney & o. 1*s*.)

“Guide to the Art of Illuminating on Vellum and aper.” By George Ashdown Audsley, LL.D., Archi- ect. Illustrated by sixteen plates and several drawings the text. (London: George Rowney & Co. 1*s*.)

These volumes are two of the latest additions to Messrs. owney & Co.'s series of treatises on the Fine Arts, and have ike the characteristic of clear expression by writers who now their subject. It is sometimes urged that instruction in t cannot be imparted by books, but it is always recognised at oral tuition from a master is valuable. If, therefore, e spoken word is useful, why not the written? Indeed, the ritten word may be the better of the two, for it can be erused over and over again, whilst the spoken word may sily be forgotten. Hence books can and do teach some- ing of art, provided that the writer can express clearly to e pupil the knowledge to be imparted, and that clarity we ve in the writing of Mrs. Jopling and Dr. Audsley. Mrs. pling's teaching is for those, whether professional or nateur, who desire to draw and paint, whilst Dr. Audsley's ok, as its title conveys, deals with a specialised department drawing and painting. Technique is the main subject of th little books, and is well and thoroughly explained.

“Reinforced Concrete Construction. Elementary ourse, with examples worked out in detail for all types beams, floors, and columns.” By M. T. Cantell, centiate R.I.B.A.; Associate Surveyors' Institution; ead of Architecture and Building Department, Municipal echnical College, Brighton. (London: E. & F. N. on, Ltd. 4*s*. 6*d*. net.)

Although containing some minor defects of grammar and fact, as in the suggestion that steel may be fused at a nperature of 1500° F., this small handbook gives in about simple a manner as possible the essentials of an elemen- y course on reinforced concrete. Particularly good is the struction on the making of forms or moulds for the ncrete, and the insistence on the importance of careful rkmanship by skilled labour in the mixing and depositing the concrete. Readiness of comprehension by students is edicated by the inclusion of numerous fully-worked amples illustrating the practical use of the various formulæ d methods of calculation explained.

THE ARCHITECTURAL ASSOCIATION.

N ordinary general meeting of the Association was held at Tufton Street, S.W., on Monday, the 13th inst., . Gerald C. Horsley, President, in the chair. After the nutes of the last meeting had been read by Mr. H. A. ll, the Hon. Secretary,

Mr. G. C. Horsley said that the next business was one really great sadness, for it fell to him to announce the death of their Secretary, Mr. D. G. Driver, which took place early on Saturday morning. So far they had received no particulars concerning it other than the bare intimation. They all knew that Mr. Driver had been out of health for many months. His health really broke down last summer, and he was obliged to go away. After some eight weeks' holiday he returned, apparently quite strong and well. But he could not have been so, and sometimes since he came back it seemed that the effects of his illness were still upon him. Unfortunately that was now proved to be only too much the case. He (Mr. Horsley) would ask first Mr. A. T. Bolton to propose a vote of condolence with the relatives, and next the members to pass that vote standing. The Council had decided to adjourn the ordinary meeting arranged to be held as a mark of respect to their late secretary. That proposal, he was sure, they would all fall in with. All would agree that the Council had done right in taking this step as a small indication from the general body of the members of the Architectural Association of their deep feeling in this matter, and their realisation of the great loss which they had sustained. He would only remind them that Mr. Driver was appointed their secretary exactly twenty years ago, and that during all that period he had devoted the whole of his energies and, he was going to say, the whole of his time—for he worked early and late—to furthering the best interests of the Association. They would all individually miss their old friend. The Association as a society would miss him as an earnest worker and as a devoted adherent to the interests of the Architectural Association.

Mr. A. T. Bolton said he was very anxious to propose a vote of condolence as being the member of the Council who was longest acquainted with Mr. Driver. It was now twenty years since he first came to them, and it seemed difficult to remember a time when Mr. Driver was not, and when the Association was conducted by the energy of honorary secretaries alone. Ever since his appointment Mr. Driver had devoted himself to placing the Association on a splendid business footing. He never became a mere official at all, for he knew everyone, and there was never anyone less bound up in red tape or more open to receive new ideas. He gave a most wonderful support to the Council whenever they undertook any new thing. Speaking from his personal recollection, he could say how, after long and complicated council meetings (and they used sometimes to be very long before the present businesslike habits prevailed), everybody on going away would tell Mr. Driver to see that everything was right, and Mr. Driver would work early and late to put the proceedings into order. Everything was managed in a marvellous way, thanks to him. When he (Mr. Bolton) undertook the day school, he would never have done so but for the knowledge that he had Mr. Driver to help him. Mr. Driver was a wonderful man, always willing to give up his time, and always ready to suggest means as to how things could be carried out in the best way. He was always present at the meetings, and the members were always glad to see him. If anyone resigned, it was Mr. Driver who won him back; if anyone's subscriptions were in arrear, it was Mr. Driver who got them. He had, in fact, no object in life except the promotion of the good of the Association. At the time of his recent breakdown, Mr. Driver had come down to the coast of Kent, and he (Mr. Bolton), hearing he was in the neighbourhood, invited him over. Mr. Driver came, and made himself so amiable to the children that they could talk of nobody else after he had left. That was characteristic of him.

Mr. Arthur Keen said he felt glad to bear his testimony to the excellent qualities that Mr. Driver showed on all occasions. He had been a friend to everyone, and one thought of him instinctively as a man of many friends. If, on any of the Association excursions or visits, they happened to knock against any old member whom no one else recognised, Mr. Driver was sure to remember all about him. They would miss him more than one dared think. It seemed extraordinary to have a meeting without him, and he (Mr. Keen) would always look back with greatest pleasure to their associations with him. Mr. Driver never spared himself from the time he arrived to the time he left the premises—and sometimes it seemed as if he were able to return home all too late. They would find it extremely difficult to replace him.

Mr. G. E. Neild said he would like to associate himself with the vote of condolence. The testimony to Mr. Driver's worth was perfectly accurate. If any member stayed away one, two, or three years he was always remembered and welcomed by Mr. Driver on his return. Mr. Driver was never so happy as in giving people every assistance.

The vote of condolence was then passed by the members rising in their places.

Mr. G. C. Horsley said he had only one more announcement to make, and that was that the conversazione would take place as arranged on the 23rd inst. The Council had considered the matter very fully, and had finally decided that the first thing their late secretary would have wished would be that the work of the Association should go on fully and without hindrance, and he would have been the first to say that the conversazione should take place.

GREAT BURSTEAD, LITTLE BURSTEAD AND LAINDON.*

THE church of St. Mary Magdalen, Great Burstead, consists of very large nave and aisle, Perpendicular tower of ragstone and shingled spire. The walls are of Norman date, very thick, with small windows inserted on the north side. The doorway to the north porch is a very good example of Late Decorated or Early Perpendicular work, and has carved scroll work and inscription *Ave Maria gratia plena.* There is a stoup here, and the carved capitals originally had heads of Edward III. and his queen; the timber in the porch is very fine.

The parish, and indeed the district, was held by Odo, Bishop of Bayeux, brother of William of Normandy, who exercised rights over some thirty churches in Essex. Geoffrey de Mandeville had authority over some forty churches. In the thirteenth century it was given to the Prior and Chapter of Stratford Langthorne. At the Dissolution, Henry VIII. granted rights to Sir Richard Rich, who also came in for the church and lands of Little Burstead. He held them *in capite* by knightly service. In 1600 he alienated all the lands of these two parishes to one Walter Farr, and they afterwards passed into the hands of the family of Petre, who still hold rights over much land in the county. The Petres being adherents of the Roman Church, the Bishops of London appoint to the livings.

CHURCH OF ST. MARY, LITTLE BURSTEAD.

The church possesses a fifteenth-century chest, said to be formed out of one solid piece of timber, and some oak benches of interesting character. A window on the north wall contains fragments of old glass, reproducing the sun, moon and stars.

On one of the fourteenth-century bells there is an inscrip tion *Vox Austini sonet in aure Dei.* In the old paris registers there are some quaint entries of much antiquaria

CHURCH OF ST. MARY MAGDALEN, GREAT BURSTEAD.

interest, one in particular—a burial of one Watts, the wido of a Marian martyr, who was burned at the stake Chelmsford by Rich and Bonner; the baptism and marria entries of the family of Joseph Hills, which family form part of those emigrants who left their homes and count in 1611 with the Pilgrim Fathers, and founded a settlemen calling it after their old home, "Billericay," in Mass chusetts, U.S.A. The anomaly of the "Georgian" rered in the old fabric was the subject of remarks. This carv work is said to have belonged formerly to a London pari church, that of St. Giles-in-the-Fields.

St. Mary's Church, Little Burstead.—The families Melvin de Bohun, de Waleden, Peckenham, Tyrell, Admir Sir Geo. Walton, and, later, the Petre family, owned lan and possessed rights in this parish and district. Sever members of these families are buried here, and the memorials are to be seen. The church is of thirteent century work, but has undergone much alteration, yet st remains a good memorial of our forefathers' reverence a love for their parish church. The material used in its wa is conglomerate. The timber tower is similar to those which Essex shows so many good specimens. The two no side windows are of late Norman work. The oaken south si door is probably of the fifteenth century.

The west end nave windows are of the Decorated perio and contain fragments of the original painted glass. T 1542 mutilated tie beam has brackets resting on corbel these had figures of angels originally, but now difficult to seen.

There is a recess in the north side of the nave which h an obscure origin; also a fragment of the rood screen on t south side of the chancel, with a portion of the wall on t south-east corner, probably part of the old stairway to t rood loft, a fragment of mural decoration being observab There is a beautiful thirteenth-century piscina and jamb window, forming the sedilia recess, and an aumbry in t north chancel wall. The two defaced octagonal stones outsi of the porch are interesting, being generally supposed to ha originally formed part of steps or pediment of a village cross.

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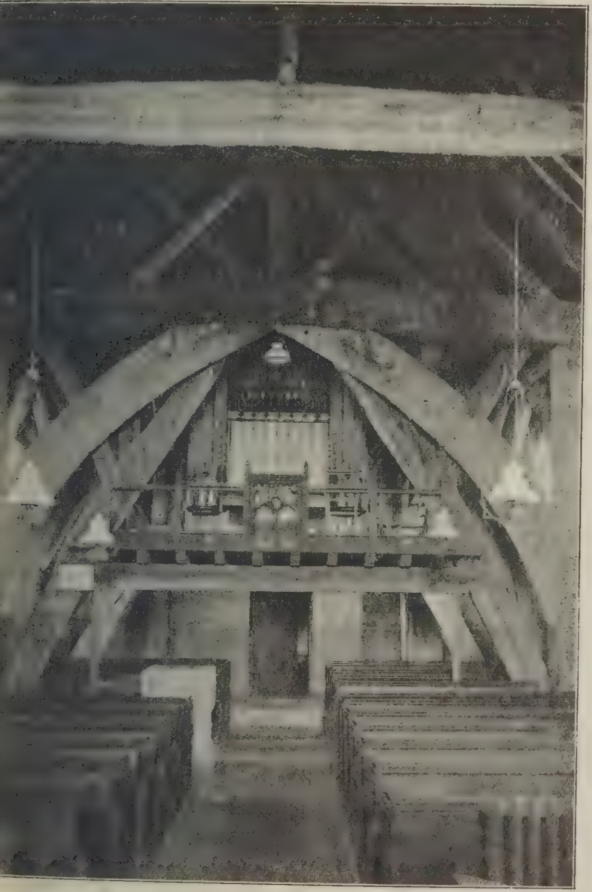
* Read at a meeting of the Upper Norwood Athenæum by Mr. Arthur W. Wollen.

In the immediate neighbourhood of St. Mary's is Stockwell Hall, formerly belonging to the Walton family, a fine example of an Elizabethan mansion. There is to be seen a sun-dial and clock, known as "Old Bones," from the fact that the figures on its face are made of bones, and an old tree in the grounds by the roadside, a survival of the oaks of the King's hunting-ground, the forest of Epping and Hainault, which forest formerly extended to Billericay.

The old-world, quaint market town of Billericay—or Billricky—has gabled houses, some good specimens of Tudor brick residences, the very old forge occupying the front of one house, and the fine ornamented brick tower of the church of St. Mary Magdalen. This old town and its immediate neighbourhood was once a Roman military station. It bears evidences of this, as close by, at Blunt's Walls, traces of Roman occupation are still in evidence. A vallum and ditch and Roman pottery urns, &c., have from time to time been unearthed, but it is Great Burstead that still holds the position of its parish church, and is the principal in educational matters. An Urban Council rules over its business.

St. Nicholas, Laindon, is a fine old sanctuary, small, with nave and Lady chapel separated by graceful massive pillars;



CHURCH OF ST. NICHOLAS, LAINDON—INTERIOR.

ned originally by the same proprietors as its neighbour-g churches and land of Great and Little Burstead. This urch is upon an eminence. Among objects of interest are e priest's house of timber and the interior massive timbers support the roof, which, starting from the floor of the urch, are carried up through the roof to form a belfry (free the wall or of the roof).

The style is Early English, with Perpendicular windows. ring restoration some twenty-eight years since, a fine rved oaken roof was brought to light, and remains of ornantal work can now be seen. The ancient piscina in the le, under which is a sepulchral stone, lacking its brass; re are also two small brasses of priests now inserted in the ancel walls, having chalices in their hands, supposed to of date 1480 and 1510. There is a thirteenth-century ndow on the north side; the font is of twelfth-century work. at an older building existed on the same site is probable. e porch, like those of other Essex churches, shows an exple of some fine old wood work and carving. This church has five bells, one bearing date 1588 and another 1619. It also possesses a few specimens of choice church plate.

Perhaps the principal feature is that of the old timber house for the priest, already mentioned; the ground floor room is now used as a vestry and robing room; there are two rooms above, the whole staircase, loft, &c., looking most quaint. On the ground floor is the old oaken Communion table and muniment chest. This old priest's house was formerly the village school, and the schoolmaster, with his wife, resided there, having the upper rooms as domestic offices. This teacher lived here for a period of fifty years. The present rector opened the Lady chapel after many years of disuse, and celebrated Holy Communion some few years since; in commemoration of this a brass memorial tablet is affixed to the wall.

The writer owes much valuable information to the very kind assistance of the several clergy attached to the three churches visited—the Rev. Herbert Carpenter, of St. Nicholas, for loan of most valuable work by Mr. Ernest Godman; the use of a volume of Essex Archæological Transactions loaned by the Rev. W. Trousdale, rector of St. Mary Little Burstead; the assistance and use of the old register of the church of St. Mary Magdalen, Great Burstead, Rev. Mr. Coldwill, not omitting aid from our friend and photographer, Mr. A. C. Weller, and our esteemed chairman, Mr. A. J. Pitman, and others.

THE CONCRETE INSTITUTE.

THE twentieth ordinary general meeting of the Concrete Institute was held on Thursday, November 9, when Sir Henry Tanner, C.B., D.S.O., F.R.I.B.A., read his presidential address.

The Institute, he said, came into being at a luncheon given by Mr. Edwin O. Sachs at the Ritz Hotel in July 1908. Subsequently the Institute was reconstructed on similar lines to those of other bodies of a like character. The membership is now about 875, and is distributed approximately as follows: 350 in London, 260 in the country, and 260 abroad, while the professions, &c., are represented by 582 engineers, 91 architects and surveyors, 31 concrete specialists, 45 chemists and cement manufacturers, and 28 contractors. A Committee has been appointed to consider how the Institute could best be broadened in its scope and interest, and in its usefulness to members, as it is found that less interest appears to be taken in the papers read, and there is increased difficulty in obtaining papers. It is suggested that papers on structural engineering might be included, since concrete and reinforced concrete form parts only of structures, frequently there being much steelwork and other materials involved, including heavy timbering, either permanent or in false work. The Committee is empowered to take energetic steps to foster that side, so that in the future it will be not only a Concrete Institute, but an Institution of Structural Engineers as well.

Sir Henry Tanner said he could not but think that the membership required better classification, and could usefully be re-arranged on the lines of several of the engineering societies. There might, for instance, be members, associate members, honorary members, associates, and students. In the future also it may be possible and advisable to hold an examination in advanced structural engineering which shall in no way trench upon the examinations of other bodies, but be supplemental thereto. Such prospects of extended scope for the energies of members is encouraging. There can be no question of the greater desirability of structures of these materials with a minimum expense for maintenance, less cost for heating (concrete being a good non-conductor), while the reduced cube must make for economy. A loan period of thirty years was referred to, while the usual loan period for schools of ordinary construction was stated to be fifty years. It is impossible to understand the difference in treatment. The new notation appears likely to be adopted generally in English speaking countries, and its adoption is now being considered in America with reasonable hopes of success. The Concrete Institute has already intimated that they would be happy to co-operate with the American Joint Committee in endeavouring to arrive at some common notation for English speaking countries, the basis being that it shall be mnemonic, the symbols coinciding with the initials of the chief words in the terminology of the subject.

A paper read before the Institute last session by Mr. R. W. Vawdrey, on "The Dissociation of Competitive

Designs and Tenders,'' was of much interest to many. It is seldom that tenders including design are asked for in any other branch of building than that of reinforced concrete. It is true that, as a rule, the general scheme is laid out by architects, and the reinforced concrete designer has only to deal with the sizes of beams and columns, thicknesses of slabs, and their reinforcement, but even this involves a very large amount of work where repeated by a number of persons or firms, and it has to be remembered that quantities have to be prepared by the specialist, one reason being because the drawings are so incomplete that it would be impossible for anyone else to prepare them. In the circumstances the quantities must be to some extent conjectural, a most objectionable state of things. Such quantities should, of course, be prepared from completed drawings and by an ordinary surveyor if competition is to be on equal terms. The responsibility for their accuracy, however, lies between the specialist and the contractor, but the tendency is for any deficiency to be saved in some way. With the architect's plans to work on there seems to be little opening for much variation when the R.I.B.A. rules have to be applied; nevertheless there results very considerable divergence in the amount of the tenders submitted, and this would seem to be due partly to the ordinary differences in builders' tenders and partly to the quantities of work to be done, of which there may be a dozen different sets. This plan avoids the selection of a specialist who is probably interested in some system and more or less indefinite patent, but it involves the employment of an expert to check the specialist, while the method affords open competition for the design and limited competition for the carrying out of the work. This seems to be the wrong way about. From an architect's and from a surveyor's point of view, the method is not satisfactory, and it prevents that consultation and co-operation between the architect and specialist which is essential. Competition for design and construction must involve the utmost economy which may perhaps be carried to the verge of safety, otherwise there is very little prospect of the work being obtained. Economy in first cost appeals to most people, but there are other points to be considered, such as efficiency and the running of unnecessary risks by which comparatively nothing is gained. The specialists, however, have the whole matter in their hands, and it is of no use theorising while they submit their designs and tenders, or, rather, builders do so for them on the mere chance of obtaining the work. It is almost impossible to make a satisfactory contract when there are no quantities attached thereto, and few, if any, drawings, these being left to be approved afterwards.

Competition in reinforced concrete work has now proceeded to inordinate lengths, and steps should be taken to put some limit to it. To effect this designers must be placed more in the position of consultants and not so closely associated with contracting firms, and must remain so unless the two things can be dissociated, and the expert, instead of checking the specialist, should co-operate in putting the latter on a higher plane. The disappearance of patent royalties and licenses will no doubt facilitate the change.

Much is said about the architectural treatment of concrete, and that that treatment should be appropriate to the material. The subject is a difficult one. The great desire is to make the whole building of reinforced concrete including the external walls and developing some new method of architectural treatment. There are many opportunities for this, as in isolated structures, where various methods of surface treatment may be adopted, but in town streets it is doubtful whether anything but stone or brick front elevations will satisfy building owners or ground landlords. It seems equally logical to apply a stone or brick front to a reinforced concrete structure as to an ordinary steel-framed and concrete one.

He was pleased to be able to say that the Institute of Civil Engineers had taken up the subject of reinforced concrete through the Committee which it appointed some time ago, and a considerable sum of money has been devoted to experiments which are in process of being carried out. There was no doubt that experiments are needed in this country with a view to obtain a consistent and complete series based on materials to be obtained here and mixed and tested under similar conditions. At the present time we have to rely on experiments in America, Germany, and France, with cement of varying character and local aggregate, and it would be of the greatest advantage if these could be repeated in some cases at intervals for some years, the improvement in strength being so great.

For some time past the Joint Committee appointed b the R.I.B.A., on which the Concrete Institute are represented, have had under consideration the revision of it first report, and the revised edition was published in a mucl more handy form than before. It is satisfactory that thi report, so far as it goes, is accepted generally as the basi of local regulations for governing buildings of this character. These regulations require to be framed in such way that they can be amended in order to keep pace wit the growing knowledge. The importance of being able t do this is shown by the London County Council having t obtain an Act of Parliament in order to make such alterations and additions to its Building Act to admit of reinforced concrete being used in an adequate way, and so nc prevent the development of a method of construction whic has been proceeding in America and on the Continent at pace considerably in advance of this country, and at saving of much money.

However, with the approval by the Local Governmer Board of the L.C.C. by-laws, it is expected that there wi be a considerable extension in the use of reinforced concrete, other cities having also taken steps to admit of suc methods of construction.

This country has fortunately been fairly free from an serious failures in reinforced concrete construction, b experiences in America and on the Continent show th there is a need for watchfulness. Although most of t failures have been attributed to bad construction and t ignorance or carelessness of contractors and their employee cutting in design may have been a contributory cause.

The Board of Education appointed a Committee inquire into the question of economy in building and as whether buildings of a more temporary nature could n very well be brought into use. Reinforced concrete can in for its share of the discussion, but the estimates of co varied largely, from 33 per cent. less to 10 per cent. mo than for ordinary building. No difference of locality wi account for these variations. It seemed as if witness having a more intimate knowledge of the cost of su buildings might have been called, while it should be possib to standardise them.

Mr. Edwin O. Sachs, F.R.S., Vice-President, in pr posing a vote of thanks to Sir Henry Tanner, remark that his presidential address covered a vast field in a mc interesting manner, and contained much informatio together with many useful hints. Personally he was somewhat of an optimist, and in considering the record of t Concrete Institute he felt that it was now going throu its childish diseases, and that when it had got over the it would grow to be the strong, important, and influenti individual such as many a man now is who has had a somewhat measley childhood. The Institute's greatest succ was perhaps its dinner. That was a well-managed affa it went well, and the speeches were interesting. Th must give their very best thanks to Sir Henry Tanner having arranged it, for it was through his putting personality into it that it proved a success. They mu congratulate themselves that Sir Henry Tanner had be elected to the Committee appointed by the Institute Civil Engineers to deal with the subject of reinforced c crete. It was a very great step forward to find that t Institute of Civil Engineers, which, in the early days reinforced concrete, slightly pooh-poohed the materi having a Committee on which their President and t Concrete Institute's President sat. The Concrete Instit was also represented on the Joint Committee appoin by the Royal Institute of British Architects; moreover t had the pleasure of knowing their President was Chairm of that Committee. Another reason for self-congratulat was on the arrangement by the Council of a series of l tures of an elementary character given by Mr. R. Vawdrey during the spring. The last point on which would like to comment was the steps to promote the ad tion of a new common notation for English speaking co tries. These efforts were pleasing their American frien and they were half-way to some understanding on each s of the Atlantic. The members had to admit, however, t in membership and in other ways the Institute had b marking time. Previously they had been going rather f in some directions. The Institute had attained a stand which was quite equal to that of many of the older institutions. Marking time for a little while had done th good. There were many administrative changes to be ma Now that those changes had been completed, the Instit could get to work, and do still better service for the scie of building construction.

Mr. Alexander Ross, M.Inst.C.E., Vice-President, in seconding the vote of thanks, said that Sir Henry Tanner had done a great deal for the Concrete Institute, having nursed it from the first. He was never careless or afraid of carrying out work on its behalf. Personally, he considered that the Institute had made decided progress. It was still comparatively new, and very few institutions of the same age stood so well with the public and the professions. That being so, they ought to be very careful before bringing about revolutionary changes. There was one great essential fact about the papers read in the past, and that was that they had all been practical. Possibly an endeavour to listen to an excellent paper and then to discuss it n one night was unwise. He thought it might possibly be an improvement if the discussion were carried over to meeting after meeting until the subject was exhausted. This course had the advantage of allowing time for the members to look up the subject and equip themselves well for the discussion.

ENGLISH MEDIÆVAL ARCHITECTURE.—V.

IN the fourth of the ten lectures now being delivered at London University, Gower Street, W.C., Mr. Edward S. Prior, F.S.A., F.R.I.B.A., reviewed the Anglo-Norman style of the mid-twelfth century and its Continental connecions—successively Cluniac, Premonstratensian and Cistercian—not as taking architecture from those places but as sharing in what was a cosmopolitan development independent of nationality. There were little traces of direct importaion of architectural style, and in the latter part of the cenury the English masons obtained control of the English advance in the direction of Gothic.

This transition was from Romanesque to Gothic. But, aid Mr. Prior, in his fifth lecture, which he devoted to "The First English Gothic," no special defect of style was to be mplied in the word "Transition" any more than any virtue f style lies in the word Romanesque. Indeed, the whole tory of mediæval architecture is one of transition. Romansque had begun by being an architecture of mass, Gothic nded by being an architecture of line; and at no time is ne conscious of any jump of style. These transitions occupied a period of 150 years, from 1100 to 1250, though the word Transition is specially applied to the work of some two enerations in the middle of this period, say from 1140 to 190. The principles of Gothic style had already been well ettled by 1140—roof and wall were being vertically and orizontally resolved and specialised into ribs, piers, and butment. Mass had been lost in these resolutions and pecialisations, but now a distinct lightening of all the elements was to accentuate the principle, and a change in decoation was to intensify its action upon style. Put concretely, his meant the appearance of four particular experimental hapings of structure: first, the detached shaft; secondly, he undercut moulding; thirdly, the pointed arch; fourthly, he projecting buttress. In buildings of the late twelfth ntury where these developments have not been quite eached, there we can speak of "Transitional" style. Where he whole four uses occur in adequate distinction, there we ay talk of English "Gothic." Transitional buildings in ngland exhibit, therefore, English Gothic, as it were, in ieces, and not as a connected whole.

Different parts of England exhibit peculiar manners of ransitional work and show the existence of more or less eparate schools of experimenting masons. To present a eneral view of these diversities, Mr. Prior divides the untry into four, in each of which the peculiarities have, he nsiders, a definite origin. First comes the "Northern" strict, comprising Yorkshire and the counties adjoining, ith an extension into the south of Scotland, and with its uthern boundary marked by a line from Chester to the ash. This area stood outside the influence of the great enedictine foundations, and was marked by a less conserative building of smaller edifices which were not so excluvely according to set fashion in ornament, construction, and an. Here was a "Reformed" architecture in its most stinct development and in greatest contrast to that richly namented Romanesque which was the last word of the nglo-Norman Benedictine mason. The gritstone available uld be quarried in large blocks, but its texture was coarse d too rough for fine moulding. The presence near York, wever, of a close-grained magnesian limestone led to a local aborately sculptured variety. In construction the northern asons developed, among other features, that distinct foot base to the wall which afterwards belonged to the Gothic yle. This northern building, with its vigorous masoncraft and delight in its expression of structural development, went far in the direction of the Early English style.

The "Western" Transitional style occurs in all the counties bordering on the Severn and its confluents—stretching to the north up to Chester, in the Midlands to Lichfield, and in the south to Dorset, including Wales and running over to Dublin. Here was a distinctly austere building under the influence of the Cistercian Order, with its craft foundation on plain parish church style, but also at its outset specially open to the Continental suggestions of Burgundian building. Generally the stones available were of finer grain and easier working than the "gritstones" of the North, but, like them, could be got of good size. Most characteristic is a roll taken round panels without capitals or base. The windows have broader proportions generally than in the northern style, and the openings are fully moulded outside. Constructionally, the most striking development of the western mason lay in his treatment of the circular or polygonal chapter-house, with its vaulting to a central pillar. The western style showed more variety, as resulting from more varied influences, than that of the north. It is less stern, as resulting from a kinder stone, and it is more romantic by its legacy of Keltic carving. Moreover, it displayed many of the characteristics of the developed early English Gothic in a more complete form than the northern style.

The "Eastern" district comprised specially the counties from Lincolnshire to Essex that border on the North Sea and its river basins. Here were established the great Benedictine foundations by the monks who were, to the end of the twelfth century, still building their great churches at Durham, Peterborough, and Ely, &c. This all-powerful body of masoncraft gave the fashion to smaller churches in the neighbourhood of the great buildings of Benedictine (or Cluniac) architecture, both in north and south. A conservative bent was imparted to building style by the workmen who were accustomed to the traditional monastic forms and were outside the influence of the Reformed Orders. In such churches as Ely, Canterbury, and Durham the forms of "Gothic" style are not led up to by that series of experiments which is conspicuous in the Augustinian and Cistercian building of the west and north. The coarse local stones of Anglo-Norman building remained generally in use, though the elaborate carvings of the latest style were worked in Caen or some local fine-grained stone. This style is a continuation of the late phase of enriched Romanesque masoncraft, with a finer and thinner cutting as its Transitional feature. Details belonging to the northern and western styles were introduced by recruits versed in the mouldings and ornaments of "Reformed" building. This phase came suddenly to an end c. 1190, and by 1200 those abbey buildings which had been most conservative—*e.g.*, Ely and Peterborough—suddenly blossom out into English "Gothic," as the Galilee porch at Ely and the west front of Peterborough.

The home counties made up the "South-eastern" district, which included London, Sussex, Hampshire, and East Dorset. London being the centre of a trade in stone and marble, the habits of her masons controlled a wide district of church building, and those habits were undoubtedly influenced by Picardy and Flanders. Indeed, on a map of European Transitional style in the last half of the twelfth century one might take south-east England with north-west France and Flanders as one province. In this province both the use of marble shafts from Purbeck and Tournai respectively and the development of a white stone constructional scheme out of Norman Romanesque are characteristic. Another foreign influence came from the new religious bodies, particularly from the vigorous Augustinian and Premonstratensian building at Laon and its neighbourhood. Out of the rubble or flint structure faced only with dressed stone, or, indeed, often only edged with it (that was the condition of south-eastern building), there grew up a distinct method, a use of marble and stone which constitutes the Early English method, and which, in the thirteenth century superseded and replaced the local methods.

The buildings in which the south-eastern style begins its specialised career are the Temple Church, London, and Canterbury Cathedral choir, rebuilt after the fire of 1175. Of the first a very complete rebuilding has remade every surface, so that what we see is only a false record of the ancient art. The value of Canterbury choir is very great, first because it has been less restored, and secondly because we know all about its rebuilding, more accurately, indeed, than is the case with any other mediæval building, through the two contemporary histories written by Gervase, the Christ Church monk. It is, however, a mistake to take Canterbury as the only piece of English building about 1175, or to reckon its architecture as specially inventing a new style. William of Sens, the first master builder, was selected not because he knew the secret of French Gothic but because he professed that he could build up again the old work as it was before. However, when hired, he set out the building on the lines of his native church at Sens. But there were English as well as French masons employed, and a kind of building craft appears such as no French example can show. When the French master retired, after his fall from the scaffold, his place was taken by William the Englishman, who was possibly a stranger to the work. At once the traces of French style disappear.

SHEFFIELD SOCIETY OF ARCHITECTS.

UNDER the auspices of the Sheffield Society of Architects and Surveyors, Mr. W. S. Purchon, A.R.I.B.A., lecturer of the Department of Architecture at the Sheffield University, lectured, on the 9th inst., on "The Architecture of Oxford." The lecture was given in the Education Room at the University.

After referring to the value of a visit to Oxford as a source of inspiration for architects, the lecturer proceeded to deal chronologically with some of the fine buildings for which the city is so famous, including, among others of the Gothic period, the Cathedral, the Chapel of Merton College, the spire of the church of St. Mary the Virgin, and the tower of Magdalen.

Mr. Purchon next drew attention to some of the buildings of the Jacobean period, such as the tower of the Bodleian Library, with its wondrous treatment of the Orders, and the extremely beautiful garden-front of St. John's. Reference was made to the porch of the church of St. Mary the Virgin, and following that Wren's Sheldonian Theatre, and the interior of the chapel of Trinity.

The plan of New College, the first of the colleges built as a complete scheme, was examined, and its influence on later college planning noted. It was also shown that Wren wisely objected to the closed quadrangle, and abandoned it. Buildings by Vanbrugh, Hawksmoor, Gibbs, and the amateurs, Aldrich and Clarke, were next considered, Gibbs's fine Radcliff Library calling for special attention.

In dealing with the work of the Greek and Gothic revivals, the lecturer pointed out that in the eighteenth century it was only lack of funds that in many cases saved beautiful Gothic work from destruction, and that the architects of the Gothic revival often had as little respect for Renaissance work. He hoped the present proposal to pull down Butterfield's chapel at Balliol, and to replace it by an imitation of the one which was removed in 1856, would prove to be the last chapter in the history of vandalism. If those in authority did not appreciate Butterfield's work they must at least realise that those who destroyed works of art in the eighteenth and nineteenth centuries had the same excuse to offer, in addition to the one that the buildings which displeased them were often not in the best of repair.

The lecturer then touched on some of the many beautiful buildings which have been erected recently, including work by Mr. T. G. Jackson, Mr. Basil Champneys, Mr. Hare, Mr. Warren, and Mr. Reginald Blomfield.

"Let us now imagine," the lecturer concluded, "that the visitor's last half-day in Oxford has arrived. He will do well, I think, to re-visit Magdalen, to see once more its beautiful tower, to walk down 'the stream-like windings of that glorious street' to the church of St. Mary the Virgin; then by way of the Radcliff Camera into Broad Street, and so on to the interior of Trinity Chapel; and finally I would have him spend an hour in the gardens of St. John's, leisurely examining the garden-front of that college. So that it will be with thoughts of these beautiful buildings that he takes leave of 'that sweet city with her dreaming spires.'"

THE Local Government Board have, it is understood, given authority to the Corporation of the County Borough of Bournemouth to prepare a Town Planning scheme under the Housing, Town Planning, &c., Act, 1909, in respect of an area of about 202 acres in the Boscombe East and Southbourne Wards of the borough.

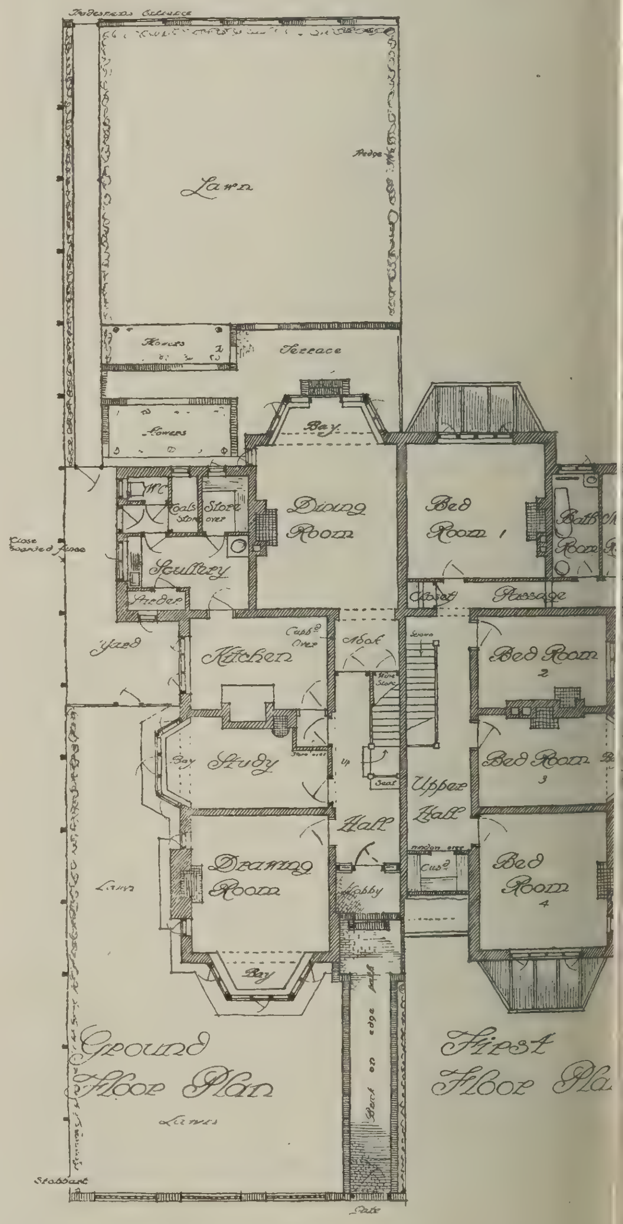
MR. HENRY R. ALDRIDGE (Secretary, National Housing and Town Planning Council) on the 15th inst. commenced a course of four weekly free public lantern lectures on "Town Planning," in the Firth Hall at the University of Sheffield.

ILLUSTRATIONS.

SEMI-DETACHED HOUSES, BLYTH, NORTHUMBERLAND.

THESE brick and rough-cast houses, which have been recently erected, add interest to the district, where the prevailing styles of architecture are certainly no interesting.

The bricks for facings are 2½ inches, pointed with whit mortar, and the roof tiles are from Boroughbridge. Brick have been used for the pavings to porches, terraces, an paths. The whole of the windows are casements, filled wit leaded lights. All external woodwork has been treated wit "Solignum." The floors of the halls are of oak wood blocks bees-waxed. The interior treatment of the hall and dining room of each house are entirely different, one being kep very simple, half-round plaster cornices, white woodwork and black iron furniture to doors and windows; the othe having ceilings and cornices treated with plasterwor modelled from casts taken from an old house on the Qua side, Newcastle; this work was done by Messrs. Fergus & Sons, Prudhoe Street, Newcastle-on-Tyne. The wo fireplaces were made by Messrs. Robson & Sons, of Ne castle-on-Tyne. The stoves, grates, and hardware we supplied by Messrs. Emley & Sons, of Newcastle-on-Tyn The electric wiring was installed by Messrs. Robson Coleman, of Newcastle-on-Tyne. The wood block floori was supplied by Messrs. Burgess & Sons, of Liverpo The general contractors were Messrs. Robson & Waddle, Blyth. The architect was Mr. Edward Cratney, Wallsen on-Tyne.



THE SOCIETY OF ARCHITECTS.

A MEETING of the Society of Architects was held at their premises on Thursday, November 16, when the resident, Mr. George E. Bond, delivered the following ldress :—

It is with great diffidence that I appear before you for e fourth consecutive year as your President, and I feel at some explanation may be desirable in case there are any embers who are not acquainted with the reasons which led my again occupying this position.

The negotiations between the representatives of the Society d the Royal Institute (in which I have taken a prominent rt) being still incomplete, I felt it would be unfair to my lleagues on the Council to desert them at this moment, ough I assure you that nothing but this fact would have duced me to have accepted re-nomination, and I am aware at the circumstances to which I have referred are the incipal reasons which influenced the Council in re-nominat- g me, and you in re-electing me.

I none the less appreciate the high honour that you have ain conferred upon me, the highest which it is in the power the Society to bestow on any of its members, but the most atifying feature about my re-election is the assurance ich it gives me of the continuance of that trust and goodll which you have so long extended to me, and the conmation of my belief that you are in sympathy with the licy which your Council and myself have been advocating view of a united profession) in regard to registration. is being so, I am able to look forward hopefully, knowing at we may confidently rely upon you to support us in our orts to secure at an early date the presentation to Parliant of a Registration Bill agreed upon between ourselves d the representatives of the Royal Institute, and such as ll command the support of the profession as a whole.

The difficulty we have been faced with in the past is in fact that the profession itself has been divided on this oject, or rather that there has been organised opposition the Society's Bill, which militated against any chance of ogress, as it is impossible in the present congested state Parliamentary business to obtain a second reading for any vate member's Bill of a contentious character.

If, however, we can present to Parliament a Bill such as nave previously referred to, we can be practically assured its securing a second reading and of its then being fully alt with on its merits.

At present, only the general principles of a Registration ll have been considered and agreed between the represenives of the Society and the Royal Institute, and much luous labour and thought will be entailed before its details ready for presentation, but if the members of the int Committee to whom the duty of drafting the Bill s been delegated, can be fully assured of the sympathetic l reasonable support of the members of their respective neral bodies, they will be encouraged to proceed, and to vote their best energies to the drafting of such a measure will, when completed, satisfy a very large majority of the ofession.

In regard to the effect which the negotiations with the yal Institute during the past twelve months have had on the Society, you will already have gathered from the uncil's annual report that notwithstanding the difficuls of our position, due to the unfortunate delay in the comtion of these negotiations, the progress and development the Society has been phenomenal, and but for the fact that considered ourselves in honour bound to observe the spirit the agreement tentatively entered into between the uncils of the Society and the Royal Institute (which at time we anticipated would be at once concluded) and ich compelled us to close the list of applications for memship, many more members would have been added to the ciety.

Many important and far-reaching proposals which in the jority of cases have been approved in principle by your uncil and referred to the respective committees to carry , have been held up. Among them the following :—1. e re-organisation of the examination scheme to qualify membership. 2. Qualifying examination for admittance the register of students. 3. The institution of a code of ofessional ethics. 4. Comprehensive scheme of memberp classification. 5. Extension and development of the rary. 6. The provision of a sinking fund.

Each of these proposals and several minor ones had ched such a stage of development at the commencement the negotiations that had they not been held in abeyance should by this time have altered our Articles of Associan to an extent which would have meant practically a reanisation of the Society.

When we found that a hitch had occurred (a matter over which we had no control) and that it was not likely that the difficulty in which the Royal Institute found itself could be got over at an early date, your Council felt that it was imperative for the Society to resume its ordinary business of admitting new members and carrying on its other work.

With regard to the proposals referred to, it was felt that it would be wise to defer their consideration, as the negotiations between the representatives of the Society and the Royal Institute have now reached an interesting stage, amounting to a settlement so far as the two committees are concerned.

I ought in fairness to say that the Council of the Royal Institute were not intentionally responsible for the delay referred to. You will remember that the negotiations culminated in the terms of an agreement being approved by the Council and general body of members of the Royal Institute, which agreement it was arranged should be executed by the Presidents on behalf of their respective bodies, and only at the last moment was it found by the Royal Institute that under their Charter the Council had no power to enter into such an agreement.

The only way that the Royal Institute could get over the difficulty was by drafting a supplemental charter which would give the Council the power to enter into this agreement.

It is anticipated that this proposed supplemental charter and the new by-laws will shortly be submitted for the approval of the general body of the Royal Institute, who having already endorsed the principles involved, will, it may be hoped, feel bound to facilitate to the utmost of their power a settlement on the lines of the agreement previously referred to. Subject to the approval of the Royal Institute and ratification by the Privy Council, the whole matter will be submitted in detail to the members of the Society, in which case, I feel convinced that they will in the same spirit recognise the wisdom and justice of renewing the approval which they gave it on a previous occasion.

It is because you naturally expect that at the opening meeting of the new session some reference should be made to this subject, that I have endeavoured to define and explain the present position of the Society, but I do not think it advisable to discuss the matter in detail, before the members of the Royal Institute have had a further opportunity of considering the proposals for the supplemental charter and the necessary amendments of the by-laws.

In the meantime I will refer in general terms to the situation, and touch upon the points and principal reasons why in my opinion the arrangement come to between the representatives of this Society and the Royal Institute should be fully consummated. My remarks will be addressed more particularly to the younger members of the profession, for it is they who will ultimately reap the benefit of legislation on the lines proposed. Under the most favourable conditions it will, in my opinion, take something like five years to get a Bill through Parliament.

The general principles of the Bill as drafted are those already laid down in the Society's Bill, and make provision for the recognition of all vested interests (which would in any case be insisted upon by Parliament). Consequently all persons who can prove that they are bona-fide practising architects at the time that the Bill becomes law will be entitled to continue that practice during their lifetime.

The first effect therefore of a Registration Bill will be to prevent any further addition of the unqualified to the ranks of those already practising, and the latter will by the natural process of elimination gradually die out, and this will necessarily be a matter of time.

The second effect will be that none but those who have been properly educated and who possess the necessary qualifications and are able to prove them, will be admitted to practice, and as this is a matter which will affect the younger generation of architects, it is obviously chiefly a question for them.

It is therefore pertinent to inquire whether they desire registration by Act of Parliament. A plebiscite instituted by this Society and by *The Builder* have proved that eight out of nine members of the architectural profession desire registration, and it is fair to assume that very few young men voted with the minority, and that of these there were none who had spent years of arduous study and preparation for passing qualifying examinations; for these, speaking generally, are the chief sufferers under the present system, or rather want of system. There are many young men on whose education and architectural training considerable sums have been spent, and who possess every qualification to practise architecture, who are obliged to remain in the position of assistants at about the average wage of a bricklayer, or who are even unable to obtain regular employment, simply because the profession is overcrowded, and there is consequently keenness of competition, so that the remuneration of the competent is kept down by the competition of the incompetent.

You may further have observed that the more incompetent a young man may be, the more likely he is to commence practice for himself at the earliest possible moment.

If he has been found worthless by his principal during the period of his apprenticeship, the result is that he is advised to try a change immediately the time expires, and if other architects find him equally incompetent as a junior assistant, his only course is to open an office of his own. It then frequently happens that some indiscriminating member of the general public (who has no conception of the duties of an architect) actuated by a desire to do the young fellow a good turn, or more probably because he hopes to get his work done for a small fee, gives him some small commission, and generally speaking, the completed work is so unsatisfactory that the client resolves never again to trust a young architect, and his reasons are made known very freely to his friends and neighbours. The competent therefore suffer with the incompetent, and the small commission which the qualified young architect would like to have an opportunity of carrying out, and which he could do in a manner calculated to secure further and more important commissions, is withheld, and probably given to a builder's clerk or foreman, who, although he may not have any knowledge of art or even draughtsmanship, will generally give his client what he expects at a reasonable price. It sometimes happens, however, that these incompetent young men have wealthy connections, or it may even be that their incompetence is the direct result of the knowledge of the fact that they will not be entirely dependent on their work for a livelihood, which knowledge makes them careless and negligent in their student days. I know instances where such young men, having been given good opportunities, have, with the aid of "ghosts" whose services they could afford to pay for, further assisted by good builders whose general foreman has been subsidised, turned out creditable work which has earned for them fair reputations, and they are now able to employ qualified assistants who are practically responsible for every detail of the practice, except when it becomes necessary to exhibit a figure-head, and they will no doubt continue on these lines for years, securing remuneration which rightly belongs to better men. I have two such cases in my mind at the present moment.

The presence of such persons in the acknowledged ranks of the profession is a grave injustice to the earnest and thoughtful young architect who has devoted much time in acquiring a thorough knowledge of every branch of his profession.

There are probably some thousands of young men in the United Kingdom serving their articles at the present time not an eighth of whom will ever attempt to pass any qualifying examination, and of whom a large proportion will go to swell the ranks of the incompetent, and thus depreciate to a great extent the general standard of ability and discredit the profession generally in the eyes of the public.

A preliminary entrance examination would reduce this number by at least one half, while another fourth would be eliminated by an intermediate examination, and I am confident that every young man who has, after years of study, proved his efficiency by successfully passing a stiff qualifying examination, must feel that the time has arrived when his competitors must be compelled to submit themselves to a similar test before being allowed to practice.

My personal observations and experience have shown me that the overcrowding of the profession and the unfair competition to which qualified men are forced to submit is the direct result of the large influx of incapable and incompetent persons into the ranks of the profession through the ordinary portals of pupilage, rather than the presence of those other undesirables who combine the practice of architecture with some other callings. If they are dependent on architecture for their livelihood and are without means or influence, their only chance of securing even that class of work which does not call for either great skill or artistic merit, is to offer inducements by way of reduced fees, by this means obtaining employment; and frequently, to compensate themselves for this, they will further stoop to the acceptance of illicit commissions.

To sum up, I would point out that it is the fully qualified young men commencing practice who have to bear the brunt of unfair competition; therefore it is obvious, for reasons already stated, that it is presumably the young men who will specially desire to support the registration policy which, if
successfully carried through, will check such competiti
and at the same time raise the status and general standa
of practice in the profession.

This will be effected by the institution of examinations
graded as to first of all test a candidate's general knowle
and aptitude for acquiring professional qualifications,
lowed by a further examination, by which means the u
would be eliminated, leaving only the capable to hope t
by the exercise of their talents, combined with strenu
and persistent study, they may pass the final test and t
qualify themselves for practice. Such examinations
not merely shut out the incapable in the early stages
their attempts in finding a career, but the knowledge t
such examinations have to be passed would have the furt
effect of compelling the idle and careless but talen
young men to diligently apply themselves in their ea
days to the task of making themselves proficient, and wo
encourage all those qualities at that time in their li
which would tend to the ultimate benefit of themselves
their clients.

Assuming therefore that the young men are convin
that the registration policy is a really practical attempt
solve their difficulties, and that its success is extremely de
able, I venture to point out that the only possible cha
of carrying it through will be by earnestly supporting
combined Registration Sub-committee and approving
agreement to be entered into between the Society and
Royal Institute.

Let us consider the situation. For more than a qua
of a century we have been actively and strenuously advo
ing a Registration Bill, but the only practical though
important result has been that the profession generally
been educated to appreciate the benefits of such a pol
During all this period we have persistently stated that
Royal Institute ought to take up the question. They h
now done so, and those members of the Royal Academy
Arts who are also members of the Royal Institute have
is understood, intimated that although they are not
pared to actively support the Registration Bill they
not oppose it; therefore one might imagine that all opp
tion had been done away with and that its success is assu
Such is not the case, as a real difficulty occurs with reg
to the composition of the administrative and registe
authority under the Bill. We contend that such a Gen
Council should be composed of representatives nominate
varying proportions by the Royal Institute, the Society
Architects, the Royal Academy and the Irish Instit
together with others elected directly by and from the gen
body of practising architects.

My personal opinion is that this would be the better p
but the Royal Institute Council, for reasons I thoroug
appreciate, could not agree to this, and had the Socie
Bill (which we had just revised and brought up to d
been presented, the Royal Institute would have strenuo
opposed it. On the other hand, it was provided in t
suggestions for a Bill that the Council of the Royal I
tute was to have full control with regard to administra
and registration under the Act, and it is obvious tha
long as the Society of Architects remains an indepen
body we should be compelled to oppose such a measur
Parliament, with the inevitable result, for we must
roughly understand that in the present congested stat
Parliamentary business only unopposed measures have
chance of reaching a second reading.

It is recognised by both parties that the oppositio
either would suffice to kill a Bill, therefore the only solu
of the difficulty is the fusion of the Society with the R
Institute. The question is, therefore: Is registration w
the sacrifice? If we are satisfied that registration is a
lutely essential, then both sides must sacrifice someth
and in the proposed agreement between the Councils of
Royal Institute and of the Society the extent of those sa
fices has been closely defined and the limit of concessions
been reached by both parties. The result represents
maximum of what either party is prepared to concede
the minimum of what either will accept.

I feel confident, therefore, that if the present sugge
arrangement is for any reason blocked, or if it is allowe
fall through, the labour of many years will have
wasted, and a very considerable time must elapse be
either party will be prepared to initiate a new schem
unity, and it is quite certain that neither the Royal I
tute nor the Society of Architects will be able to car
Registration Bill through except by mutual agreement.

I am sure that in a profession which demands of
bona-fide followers such wide and varied gifts, and in wh

who hope to attain to some degree of excellence carefully ain themselves in habits of clear and consistent thinking, esight and self-reliance, no more need be said to commend them the decision arrived at, after long and earnest deli-rations, by those who were specially delegated to inquire o and report as to the best solution of the problem with ich they had to deal.

But there is another point to which little reference has n made, and one to which all our leaders attach even ater importance than to that of registration—viz., that consummation of the suggested arrangements will be the t real step in the process of attaining complete unity in profession. The well-being of a great profession cannot considered merely as a question of to-day, or to-morrow, even ten years hence; there is a long future before it, and is with this thought ever in our minds that legislation is posed. Looking ahead your leaders see a vista of long rs of useful work, progress, and development, under the ner of one great Institution, including within its ranks *bona-fide* architects in the United Kingdom, strong ugh to legislate within itself for the ultimate benefit of members, and with sufficient power to compel their obedi-e to its moral edicts and code of professional honour, by these means be able to enforce its reasonable regula-ns upon those outside with regard to competition con-ions and other matters affecting the honour and interests the profession. Your present leaders are but laying the ndations upon which their successors—that is to say, the re able, earnest, and thoughtful of the young men of to-—will raise and maintain the superstructure.

Is the attainment of such an ideal worth a little present f-sacrifice? I simply ask the question, hoping it will be l considered by all before a definite opinion is expressed.

CTURES ON HEATING AND VENTILATION AT UNIVERSITY COLLEGE, LONDON.

HE fourth of a course of six public lectures on the "Real Nature of the Problems in Heating and Ventilation aiting Solution by the Engineer" was delivered by Mr. hur H. Barker, B.A., B.Sc., on Tuesday, November 7.

He had in the previous lecture commenced the considera-n of the possibilities of utilising waste heat from industrial erprises for warming inhabited buildings.

This could be divided into several heads, which included: heat supplied in excess of requirements, and wasted in nging about results obtainable by a much smaller expen-ure of energy if properly applied; (2) heat lost by con-tion through inefficient non-conductive material or leaky e joints; (3) heat contained in exhaust steam or denser water; and (4) that which found its way in the n of flue gases direct into the open air.

The heat lost under the first two heads could be regarded irrecoverable, but there were certain possibilities in the lisation of waste energy of the nature of numbers three four.

Other forms of energy, such as were contained in coal and amite or, better still, electricity, could be transferred from ce to place, but the same operation with heat must always mpossible. It was part of its very nature to get lost, in-uch as it imparted some of its warmth to anything in tact with it or through which it passed.

At present the only purpose which the heat in the flue es served was to create a draught through the furnace, a steful process when it was remembered that this could effected quite as efficiently by means of a fan.

The present cost of fuel, however, made the existing hods possible, and it was not thought to be commercially fitable to face the outlay necessary in order to save the t wasted in this way.

Another factor was the probable distance of the factory works, where the heat was generated, from the building to warmed, a consideration which limited the possibilities of idea. Here again it was at present found cheaper to n fresh fuel at the point where the heat was required, and price of this fuel was the root factor of the whole blem.

The waste heat, after being collected and transferred to e medium such as water, would have to be pumped from centre through pipes to the various houses. What sys-could be devised for charging the consumer for this heat ply? It would be difficult to register the quantity of t used, for although this would be simple in the case of quantity of water which passed through his meter, it ld also be necesary to take into account its temperature. The charges might be levied according to the area of radiating surface provided on the annual value of the house.

There were many difficulties in the way of adopting such a scheme which would probably prevent the practical consideration of the idea until there was either a rise in the price of fuel or a decrease in the cost of power. In our climate, where prolonged cold was unknown, the saving would be less, compared with parts of America and the Continent, where it might be worth while to incur the necessary capital outlay under present circumstances.

The possibilities of leakages from the pipes would render it necessary to construct subways, preferably of sufficient size to allow a man to walk along them. An expense of probably £8,000 per mile would thus have to be faced at the start. If steam were the medium employed, the water produced by condensation would have to be returned, and any difficulty as to levels would require a system of pumps for this purpose.

Some solution of the problem as to the expansion of large pipes was required, and here there was need for an efficient invention, there being no really satisfactory joint to provide against this.

The whole cost of a system would mean, for a 4-inch pipe, £950 per mile, rising to £4,200 per mile for a pipe 9 inches in diameter, to which must be added the cost of subways, say, at 30*s*. per foot run, and cost of maintenance, power, and interest.

The essential hard fact was that the cost of heat saved must be sufficient to render it commercially profitable to face this capital outlay.

He had made a careful calculation of the requirements of a small establishment such as his own, and he thought that at the outside the heat necessary to warm his house was 35,000,000 thermal units per annum. Taking a thousand houses of this size, which would represent a small town of from 7,000 to 8,000 people, say two miles from a manufacturing centre, the output would need to be 20,000,000 thermal units per hour. Allowing for cost of plant, interest, and depreciation, it would then be necessary to charge each householder £15 per annum for his heat supply, and he did not think that, with coal at its present price, many people would be willing to pay this amount, when they could, with a separate plant, warm their premises at half the cost.

Added to this was the fact that in this country the prejudice in favour of the open fire was so deeply rooted as to be practically ineradicable.

The future might produce such conditions, however, as would force some such system upon the community, and he believed that in two hundred years' time some modification or improvement of the thermo-dynamic method mentioned in his last lecture would be in practical operation.

Our present practice was in many cases too expensive, and the temperatures of some rooms, especially in such institutions as workhouses, were maintained at positively unpleasant figures. To attain a temperature just necessary to comply with health requirements was what we must aim at, and this depended largely on the interchange of air that went on in a room. This interchange, which was a great factor when considering heat loss, obviously varied with the position of a room or its relatively exposed situation in a building, and any degree of accuracy in estimating its extent was impossible, whilst calculations of the heat required to maintain a given temperature must be mere assumptions based upon general experience. Heating engineers were often provided with drawings and asked to decide what provision should be made for heating a building before certain features which would affect the question of an interchange had been determined. He had one case in mind where the employment of a different wall-paper had affected the temperature of a room to 4° or 5°. Any estimate of heat required to maintain a temperature, which often had to be guaranteed, might be in error to the extent of 25 per cent. merely in consequence of such a difficulty. Air interchange was affected by the construction of the walls and the size of windows and fireplace.

Experiments had been made by introducing a known quantity of CO_2 into a room under various conditions, and by careful subsequent analysis testing the extent to which the air had become changed. With the outside air still and fireplace closed one-third of one interchange per hour was found to have taken place. With the fireplace open the interchange was one per hour, whilst a similar figure was recorded with the fireplace closed when there was a slight breeze outside. With a brisk breeze outside the interchange was 1.4 to 1.6 per hour, and with a lighted fire during a slight breeze the change of air reached 2.5 to 5 per hour. In a larger hall the interchange was one-third per hour during a slight wind and one-half per hour with a stronger breeze.

These figures showed how impossible it was to tell with any accuracy what heat would be required, in given cases, to maintain a guaranteed temperature.

THE SURVEYORS' INSTITUTION.

AN ordinary general meeting of the Surveyors' Institution was held on Monday, November 13, when Mr. Edgar Horne, M.P., President, delivered the opening address. Previous to this the portrait of Mr. Daniel Watney, painted by the Hon. John Collier, was presented to the Institution. The meeting was held in the recently enlarged Lecture Hall of the Institution.

Mr. Edgar Horne, in his address, said that they, as surveyors, could not overlook the criticisms which have arisen during the past year in the debates in the House of Commons on the subject of the administration of the land taxes and the valuations in connection with them. Cases have been quoted which, although the speakers have usually disclaimed any intention of casting aspersions upon the conduct or integrity of the valuation staff, have indirectly had that effect by holding up for public condemnation the methods employed by them.

Those who have had experience in valuations know the difficulty and care needed in collecting all the data necessary in order to come to a sound conclusion, and the undefinable period of assimilation of those data before the result can be stated with any confidence; and even then allowance must be made for errors of judgment. When therefore one takes into consideration the youthfulness of the Government staff, their enthusiasm and anxiety to make progress in the formidable task that lies before them, such cases as have been the subject of complaint, and as should not more correctly be attributed to the hard-and-fast methods of valuation laid down by the Act, must be ascribed to haste and to that ignorance of material factors affecting value, which is almost inseparable from haste. Speaking as President of the Surveyors' Institution, he would beg those who have control of this body of young surveyors to urge their staff to be deliberate and cautious in forming their opinions, but beyond this when errors have been made, as made they must be, to give them an opportunity of adjusting them without delay, and thus avoid the risk of exposing these young professional men to public odium.

Another subject which had pressed itself upon his notice, said Mr. Horne, was the position which has gradually grown up in connection with the compulsory purchase of land by means of powers obtained under Private Acts of Parliament.

Much has happened since the railway boom in the first half of last century necessitated the passing of the Lands Clauses Consolidation Act—a measure which still stands as a memorial to the thoroughness and care expended by our forefathers upon legislation of this class—and he was one of the last to suggest that with these changes some amendment in the procedure there laid down had not become both inevitable and desirable. All recognised that property which is needed for public purposes should be acquired readily and on terms fair both to the community and the owner, and in the provision of small holdings, the planning of our future centres of population, and the laying out of through routes of transit, the Legislature has decided that the national need has justified the adoption of special powers.

But the acquisition of land by Private Bill comes under a different category. It is not uncommon to find in some innocent looking Omnibus Bill promoted by a local authority a clause inserted, which by a seeming mere verbal alteration would give powers considerably in advance of those previously granted. He did not pretend to say whether such powers might be desirable or not, but he did say that their effect was often not appreciated, that they provided precedents for similar legislation in the future, and that it is not to the public advantage that important alterations in the law should be allowed except through the medium of a general statute. Within the last three or four years attempts have been made in Private Bills by Corporations to alter the provisions of the Lands Clauses Consolidation Acts in three important particulars, viz.:—(1) In enacting that any enhanced value accruing from public works executed within five years from the date of the notice to treat should be excluded from any question of compensation; (2) In enacting that, where the particulars of claim are insufficient and not delivered within sufficient time, the claimant should pay half the costs of the proceedings; and that, where the award or verdict was for a sum less than or the same as the offer, all the costs of the proceedings should be paid by him. (In enacting that a single arbitrator should in certain cas determine compensation.

These attempts, with one slight exception, have not yet proved successful.

In the House of Lords the Model Clause No. 27 (Misce laneous) "Costs of Arbitrations under Lands Clauses Acts, which has been in existence since 1901, has been followed every instance, and no alteration from the Model Clause h been allowed.

While fully aware of the difficulty of steering a compl cated measure through the House in the present congest state of Parliamentary affairs, he was strongly of the opini that the time had now come when an attempt should made to lay down comprehensive regulations on this subje of compulsory purchase, so that all concerned may kn exactly where they stand.

Mr. Horne gave some interesting figures to show t growth of London during the last forty years.

Taking the areas of the various rating authorities detail, the City of London shows a fairly regular increase rateable value each quinquennium, but it should not forgotten that the last reassessment was conducted und fresh conditions, inasmuch as many rating authorities the City were done away with, one central authority subs tuted for them, a process of unification which wou naturally be followed by a levelling up of the low assessments.

Battersea, after exhibiting an increase for the fir 35 years from 1871, comes out with a slight decrease for t last quinquennial period.

Bermondsey exhibits the same state of things, and so al does Bethnal Green.

The next five areas, Camberwell, Chelsea, Deptfor Finsbury, and Fulham, although they show slightly bett results, yet exhibit a marked check on their increase duri the last quinquennial period.

Greenwich and Hammersmith figures, although they sh a slower rate of expansion during the last five years, a not unsatisfactory.

Hackney and Hampstead have practically ceased progress, and the same may be said of Islington, Kensin ton, Lambeth, Lewisham, Paddington, Poplar, and S Pancras.

Holborn and St. Marylebone still exhibit increases value though the rate is a diminishing one, while Sho ditch, Southwark, Stepney, and Stoke Newington are, as whole, falling in value, though Wandsworth, probab owing to the amount of new land developed during the la quinquennium, shows a moderate increase.

The City of Westminster again shows a fair increase, b it is doubtful if this rate will be maintained in the futu as there is no doubt that this city, like its sister City London, has profited by the unification of its rati authorities.

Turning now to the totals of London as a whole, t growth which was fairly continuous during the thirty-fi years from 1871 has practically disappeared during the la five years, and it is very questionable whether the ne quinquennium will see any improvement over the figures this year.

The results of the census are equally remarkable. Tak as a whole there is an actual decrease of the population London, residing within the Metropolitan Boroughs and t Cities of Westminster and London, of something over 13,0 and were it not for the very considerable increases shown the still suburban boroughs of Lewisham and Wandswor this shrinkage would have amounted to over 126,000.

People are apt to consider that increases in the assessa value of London must be due either to the improved val of the land or to the new buildings erected upon it. Bo these factors may, and indeed generally do, contribute to but the rates also benefit very largely by the assessme of hereditaments which owe little to either land or buildin and whose value is determined by their profit-earni capacity; and the growth of these has been the means materially swelling the gross values for rating purposes.

1. *The Land.*—The increase in the value of land, wh the whole of London is being considered, is probably impe ceptible, and certainly not at the rate imagined by man The various imperial and local taxes to which it is expose and which each year we see becoming more onerous, must held responsible for this. Of course there are appreciatio in value in some parts, but they are accompanied by depr ciations in other localities, and if we adopt the simile of t waves of a nearly tideless sea we shall not inaptly descri

phenomenon of the varying values as recorded from year year.

2. *Buildings.*—The additional rating values which new ldings afford are counterbalanced to a very large extent the depreciation due to wear and tear of existing build- s, and the varying requirements of fashion and trade ich are continually operating to render these structures olete. This is particularly noticeable in the case of vate residences, which have suffered very severely during last few years. The large number of empty houses with rds up, indicating that they are to let, not only show ir failure to attract occupants but also depress the level rents of similar houses in the neighbourhood. If the icism is made that their failure to attract tenants is due their not being in accordance with modern requirements, answer must be that the rent, which even a modern house he particular neighbourhood would command, would little re than cover the fair interest on the cost of building the rates which have to be paid. The land value would n, therefore, in reality to be small, although owing to e old lease the premises are still saddled with a ground t far in excess of the present site value. In cases of character the municipal authorities have already taken, means of the rates, a large proportion of the value which land would otherwise have.

3. The peculiarity of the third class of rateable heredita- its is the naked and unblushing way in which their value profit-earning concerns form the basis of their contribu- is; and the fact that the rates are becoming in London pecies of income tax chargeable on the profits of trade is which merits serious attention. Of course shops and er trading businesses suffer in the same way to some ent, but the figures in their case are masked by other siderations.

London is now suffering from a want of the activity nerly shown in providing new thoroughfares, and im- ving old ones to cope with the necessities of traffic and merce. The corn and coal dues in former days provided means of carrying out these enormous and much needed rovements, but these were given up foolishly, and were ot for the resources of the Bridge House Estates, it is btful whether London would have any chance of being vided with the new bridge, which we have been promised, which is so much needed. The spirit of parsimony, ch is not true economy, puts off from year to year the k which is so necessary if London is to keep pace with the uirements of the people, and the interminable wranglings veen the boroughs and the county council as to what local and what county improvements never come to an . The widenings of the Strand and of Piccadilly promise ake another twenty years. Waterloo Bridge is incapable arrying the traffic, and the new streets and traffic regu- ons suggested by the Royal Commission or the Board of de seem to serve no better purpose than to provide the erial for a few newspaper articles.

How desirable it would be if some procedure could be sed for acquiring compulsorily properties required for ening and similar improvements other than under the quated provisions of a section in Michael Angelo lor's Act. The rights of both parties need to be more rly defined than they are under that statute, and the er of a Naboth's vineyard should feel secure that it may be wrested from him by a rich and unscrupulous neigh- r, who is able by some means or other to induce the horities to put the Act into force.

THE INSTITUTION OF MUNICIPAL ENGINEERS.

T a meeting of the Council held on November 1 the following applicants were recommended for admission:—(*a*) To nbership: A. E. Rosser, deputy surveyor and engineer, nsea R.D.C.; John Lewis, surveyor, Yiewsley U.D.C.; Fothergill, deputy borough engineer, Bexhill; G. F. wford, highway surveyor, Southport; H. E. Gilkes, f assistant surveyor, Yardley R.D.C.; A. MacDonald, gh surveyor, Stornoway; R. S. Wilson, city surveyor's e, Sydney, N.S.W.; B. P. Varma, executive engineer, jab Irrigation Branch (P.W.D.); F. J. Hurley, sur- r and water engineer, Crickhowell R.D.C. (*b*) To ociate Membership: C. T. Chadwick, assistant borough eyor, Maidenhead; G. L. Harrison, city surveyor's office, ney, N.S.W.; M. B. Khan, sub-divisional officer, .D., India; W. A. Jackson, borough engineer and sur- r, Malton. (Under the new by-laws these elections will be ratified at the next Council meeting if no written objections are lodged within 14 days.) (*c*) Elected to Studentship: W. Jackson, Municipal School of Technology, Manchester. *New Members, &c.*—From the applicants recommended for admission at the last meeting three members and two Associate members were elected. *Chairman of Council.*—Mr. Henry J. Farmer, borough surveyor of Christchurch, was elected chairman of Council for the year 1911-2. *Hon. Librarian.*—Mr. Henry J. Weaver, of Gloucester, was elected hon. librarian for the year 1911-2. It was decided that Council meetings be held on the fourth Wednesday and fourth Saturday in alternate months, the next meeting to be held on November 22.

NOTTINGHAM ARCHITECTURAL SOCIETY.

THERE was a capital attendance at the first meeting of the Designing Club in connection with this Society held on Tuesday, November 7. The subject set for competition was a design for "A Co-operative Stores in a Mining Village." Three designs had been submitted, and were fully criticised by Mr. W. V. Betts, who had set the subject and prepared the conditions. After he had placed them in the following order, "Carbon" first, "Capricornus" second, and "Old Friend" third, an interesting discussion took place. At the close Mr. A. E. Heazell, F.R.I.B.A. (who took the chair in the absence of the president), thanked Mr. Betts for his kindness in criticising the designs and the three competitors for submitting them. Mr. H. Gill, in supporting this, said that as the subject set required special treatment, Mr. Betts had not only pointed out the merits and defects, but had also given them a great deal of valuable information, which could not but be useful, not only to the younger but to the older members present.

The Chairman announced that at the next meeting on November 21 Mr. Burke, of Manchester, would read a paper on Reinforced Concrete Construction.

THE INSTITUTION OF CIVIL ENGINEERS.*

The Loch Leven Water-Power Works.

By A. H. Roberts, M.I.C.E.

THE Loch Leven Water-Power Acts were obtained in 1901 and 1904, authorising the construction of works to utilize the rainfall of the western slope of Rannoch Moor for power for industrial purposes. The scheme possesses a number of advantages, including large catchment-area, heavy rainfall and high head, all in proximity to the seaboard. The author refers to the usual waterworks practice of reckoning only upon the mean rainfall of the driest three consecutive years, and suggests that in power-schemes of this character it might often be possible to obtain a greater output of power with the same expenditure. This could be effected by installing extra units of power plant (turbines, &c.), making a reduction in the height (and therefore in the cost) of the storage dam, and arranging to work the extra power in wet seasons.

The catchment-area for the Loch Leven Works is the basin of the River Blackwater, and is fifty-five square miles in extent, lying between Lochs Treig, Ossian and Rannoch and Glen Coe. Rain-gauges established in 1905 and 1906 have given average readings of over 70 inches for the Blackwater basin and 80 inches for Kinlochleven. No compensation-water had to be supplied, this feature greatly increasing the available power. The site of the reservoir is favourably contoured for storage purposes, and the full reservoir is about 7½ miles in length and ½ mile in breadth. Its greatest depth is 75 feet, and it impounds over 20,000 million gallons of water. The Blackwater dam is 3,112 feet in length, with a maximum height of 86 feet, its top surface being 1,068 feet above Ordnance datum. About half its length is formed as a waste-weir in six horizontal steps of 6 inches each. The foundation is of an exceptionally sound character; only a few feet of the surface beds had to be removed to obtain a satisfactory foundation. The plant and materials required for the construction were brought by sea to the wharf and carried thence to the dam, &c., by an overhead cableway and an overland railway of 3 feet gauge, which latter included two rope inclines. The cableway was driven by a Pelton wheel at the foot of the Falls of Leven. The dam is built of large blocks of stone embedded in a matrix of ordinary concrete, with fine concrete facework. The bulk of the cement was of rotary-kiln manufacture, and exhibited certain characteristics, which are described. Cracks due to the contraction of the concrete appeared after the dam was built, traversing it vertically from top to bottom. Reference is made to the question of inserting contraction-joints in large dams. The valve-tower contains the six valves of the three draw-off pipes, the spindles being carried up to the valve-house above top water level. The draw-off pipes lead to the upper penstock chamber, whence the water is delivered over a measuring weir into the conduit.

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* Abstracts of two papers read at the ordinary meeting of the Institution on Tuesday, November 14.

Water is conveyed to the pipe-track by this conduit, which is 3½ miles in length; it is of square section 8 feet by 8 feet, and is laid to a general gradient of 1 in 1,000. The construction consists for the lower part of a channel excavated in the rock and lined with concrete; while the work above rock level is of concrete reinforced with expanded metal and round bars. Expansion joints are inserted in the walls at intervals of 64 feet. Contraction cracks, however, appeared midway between these joints until the conduit was brought into use, after which they closed up entirely. The arrangements for the maintenance of the natural surface drainage are described, and also the methods of shuttering and concreting the work. Along the route of the conduit and above the same lies a catchment-area of 3½ square miles, with a rainfall of about 75 inches, the greater part of which is drained by three streams. These have been laid under contribution by collecting their water and turning it into the conduit. A description is given of their intake works and of the automatic valves for throwing off superfluous water. Electrical transmitters and recorders indicate to the valve-keepers at the lower penstock chamber the changes taking place in the contribution of the side streams, enabling them to take advantage of the extra water and reduce the draw-off from the reservoir, thus storing an equivalent quantity of water in the reservoir. The conduit discharges its water into the lower penstock chamber of about 300,000 gallons capacity, where it is measured and delivered to the pipes as required.

From the penstock chamber water is conveyed to the power-house in six welded steel pipes of 39 inches diameter. The track is 1¼ mile in length, and the fall of 935 feet yields a normal static pressure of 406 lb. per square inch. Pipes are supported upon concrete pedestals, and at the bends there are heavy concreted anchorages to resist the thrusts of the water and pipes. The pipes are made from one plate welded longitudinally, and vary in thickness from 10 millimetres (0.394 inch) at the top of the hill to 22 millimetres (0.866 inch) at the foot. With the exception of flange-joints in special positions the whole line is jointed with a special "muff" joint, a form of spigot and socket with joint rings for securing the packing material. Expansion is thus accommodated at every joint. The pipes were brought to the site by an overland railway laid up the hill alongside the track, and were lifted into position by specially-adapted derrick-cranes. Water is distributed from the six main pipes to the various turbines by a system of pipes comprising two omnibus pipes and six feeders, all of 39 inches diameter. Each "bus" pipe with its three feeders forms one complete system, the two systems being at different levels to enable branches to cross. One branch from each "bus" pipe feeds each turbine. The main valves which control the supply of water to the distributing pipes are of ordinary sluice-valve type, but specially designed to meet the combination of large diameter and high pressure. They are hydraulically worked, and are fitted with operating gear and automatic closing appliance, together with a mechanical device for controlling the speed of closing. At the top of the pipe-track, immediately below the penstock chamber, automatic cut-off valves have been installed, of the usual "butterfly" pattern, to stop the flow of water in the event of a burst occurring on the main pipe-lines. At the summit of a slight elevation in the main line air-valves have been fixed of a special design to allow large quantities of air to pass in or out, as required, when filling or emptying pipes. The tail race is of concrete, the channel leading to an outfall in the River Leven.

The company have constructed a wharf and a jetty, both of timber, in Loch Leven, and have dredged a channel through the Loch Leven Narrows. A domestic water supply has been installed for the village and factories of Kinlochleven. It comprises a storage-reservoir with concrete dam in a neighbouring valley, pipe-line, a service reservoir of reinforced concrete, and distributing mains. The dam at present is only carried up to half its ultimate height; this, when completed, will be 55 feet, and its length will be 440 feet. Contraction-joints are provided, and have proved efficient i preventing the occurrence of cracks.

The works described in the paper have cost about £600,00 and are now the property of the British Aluminium Com pany. The electrical plant in the power-house forms th subject of another paper (see below). The construction wa begun in August 1905, and the factory commenced workin in February 1909. The engineers were Messrs. Thoma Meik & Sons, and Messrs. Kennedy & Jenkin, in collabora tion with Mr. W. Murray Morrison, the manager an technical adviser of the company. The principal contractor were Sir John Jackson, Limited, and there were othe subsidiary contracts. The author was resident engineer.

The Hydro-Electric Plant in the British Aluminium Company's Factory at Kinlochleven.

By F. B. Sonnenschein, Assoc.M.Inst.C.E.

This paper deals briefly with the plant erected in th power-house at Kinlochleven, other than that which is c standard design in England, and a detailed description of th tests made on the turbines and generators is given. Th aggregate power installed is 30,660-h.p. at the generato couplings, the generators being capable of a maximum outpu of 21,088 kilowatts. Nine main units and two exciter unit are erected, each unit consisting of a turbine and two genera tors. The main turbines are of the Pelton-wheel type, wit two water-jets, and are designed to give 3,200-b.h.p. as maximum; each drives two generators coupled in paralle and having an output up to 2,200 kilowatts together. Th two small exciter units are also of the Pelton-wheel type, eac driving a pair of generators on one shaft. These consist c an exciter and lighting machine, capable of giving an outpu up to 550 kilowatts, and a traction machine up to 94 kilowatt capacity. All the connections between the generators, fu naces, &c., are made of bare aluminium strip. The feede and distributors for lighting and power in the village an on the railway and wharves are also made of bare strande aluminium cables erected on poles, and this metal has bee found to be perfectly satisfactory under all conditions.

Efficiency and governor tests were carried out on the mai units, and governor tests on the exciter units, as follows:- An iron wire resistance was used for absorbing the electri energy, and was placed in the tail-race, being kept cool b the discharge water. Below the resistance a hook gaug was suspended for measuring the head over a weir. A gat constructed in the tail-race could be closed at will, thus form ing a reservoir to measure the quantity of water passin over the weir at varying heads. After the weir curve wa known, measurements were taken of the output of the genera tors at varying loads, and from these figures the efficienci were calculated. The results obtained showed that the tu bines did not quite reach their anticipated output, and th their efficiency was slightly below that guaranteed by th makers. Further tests are described, in which the areas the jets were increased in size. It is shown that the efficienc was improved about 2 per cent. by increasing the area of th lower jet, but keeping the top jet of the original size, an by this alteration the turbines were enabled to give th specified output at the guaranteed efficiency.

The governing tests are then described. The specifie limits for the variations in water-pressure and speed a enumerated, and the natural conditions are given und which these results had to be obtained. It was found durin the tests that the generators were liable to flash over if th voltage increased excessively, and that they were also liab to flash over if a circulating current flowed round the tw armatures of the dynamos on the same shaft running i parallel, when load was thrown off. An electrical protecti device was therefore designed and fitted to each pair generators, which automatically breaks the field-circuit whe either of these two conditions arises.

Messrs. Escher, Wyss & Co. supplied the turbines, an Messrs. Dick, Kerr & Co. the dynamos. The author acte as resident engineer for Messrs. Kennedy & Jenkin.

FIRE TESTS WITH FLANNELETTE.

THE British Fire Prevention Committee's testing opera tions on Wednesday, November 8, were devoted to series of 120 tests with ordinary flannelette and flannelett that had been washed with a solution intended to make i less inflammable.

The members of the Committee and the visitors prese were received by Messrs. Edwin O. Sachs, F.R.S.Ed. (Chai man), and Mr. Horace S. Folker, F.A.I. (Hon. Treasurer), embers of Council, and among those present were represen- tives of the Home Office, London County Council, and other blic authorities, as also Sir Horatio Shephard, M.A., ,.D. (of the Coroners' Committee), and some officers from lgium and Hungary interested in the subject.

The tests were with flannelette that had been washed ce, five times, and twenty times respectively. The flannel- e was partly of rough and partly of fine finish, and was ted when hung straight and when hung pleated.

The tests were conducted by a sub-committee of eight, th Mr. Ellis Marsland, district surveyor, as directing mber. The sub-committee included Messrs. J. Herbert er, Oswald Wylson, F.R.I.B.A., Bertram Chatterton, J. A. Fulkes Nicholls, M.Inst.C.E., J. T. Cuss, J. W. ooker, R. W. Henderson.

The British Fire Prevention Committee will issue an cial report on the results shortly.

ECTURES ON ILLUMINATING ENGINEERING.

HE first of a series of twelve lectures on "Illuminating Engineering" was delivered by Professor J. T. Morris, I.E.E., on Tuesday, October 31, at the Polytechnic In- tute, Regent Street, W. The subject was that of Electric ghting.

The chair was occupied by Mr. A. H. Seabrooke, who efly opened the proceedings, being followed by Mr. L. ster, editor of the *Illuminating Engineer*, under whose perintendence the course is to be held.

Mr. Gaster referred to the enormous developments which d taken place during recent years with regard to this sub- t, a fact that was emphasised when it was remembered t not very long ago the word "illumination" was generally derstood to mean something to do with "fireworks." The sent course would deal with all aspects of the science of mination, including the effect of light upon the eyes.

Professor Morris commenced his remarks by dealing briefly h the general nature of electrical supply. This was ally at a constant pressure and voltage, and any fluctua- ns in this respect led to marked variations in the c.p. of lamps. A carbon lamp would be affected to the extent 5 per cent. by a mere variation of 1 per cent. in the supply, d although metal filament lamps are not so susceptible to h changes, the same variation in current would cause lifference of 4 per cent. and 4.6 per cent. in the c.p. of a ngsten and tantalum lamp respectively.

As to the methods adopted in charging the consumer for supply of electric current, the present system seemed erally satisfactory. The cost of making the connection, ., was split up into a small annual charge, in addition which the customer paid so much per unit for the current d. This was found to be more satisfactory than the ximum demand system, which was difficult to explain to ordinary consumer. With regard to charges for base- nt lighting, it was certain that some difference should recognised here, since the current was used during the time, when there was less demand, and consequently less ficulty in supplying it. The charges in this case should be hter.

It was often asked why the consumer could not be con- cted to the electric mains and allowed to use as much as quired, as with the water-supply. The answer to this s that there were no means of preventing the most reck- s waste other than that of making a man pay for what consumed. Another difficulty arose from the change in mand occasioned by an increase in candle power of the nps in a house. When the total candle power was aug- nted the annual charge should be correspondingly raised. ch a regulation, however, would mean a rigorous system inspection, and this was what the average Englishman y much resented. It was necessary to develope a plan ose success would be independent of such means. A solu- n lay in the employment of an instrument known as a rent limiter, which, when adjusted to the requirements an installation, and when the ordinary demand was ex- ded to any extent, conveyed this fact to the consumer in plainest way by causing his lights to blink in a most asperating manner until he replaced his old lamps.

Passing to the consideration of the lamps themselves, the lting-points or temperatures of various types of filament re compared, from which it appeared at the first glance at carbon possessed the highest value; but it was known at this material became plastic at 1,750° to 1,800° C., which ct could be easily proved by simple experiments. The lting-point figures for metals were: Platinum 1,730° C., nium 2,200° C., tantalum (not pure) 2,910° C., tungsten 3,080° C., below which these substances could be used without their giving off deleterious vapours to any great extent.

This contributed to their larger use.

At one time experiments were made with carbon filaments coated with various oxides, but it was found that this either split away from, or was absorbed into, the carbon core when used for some time. The relative efficiency of well known lamps in terms of candle power per watt compared as follows: Carbons .29, metallised carbon .37, tantalum .53, tungsten .77, helium .90.

A series of slides was next shown illustrating the various stages in the manufacture of the tantalum lamp. The mechanical strength of a filament was demonstrated by lifting a two-pounds weight suspended from a single strand. These lamps had been much improved since their introduction. The connection between the leading-in wires and the filament had been improved, and was now effected by drilling a hole in the end of the former, into which the latter was inserted. The connection was then pressed together, thus doing away with the use of solder. The breakages which occurred in the earlier lamps, through the filament possessing a tendency to tighten, had been obviated by forming corrugations in the filament, thus imparting to it considerable elasticity. Care had to be taken that these corrugations did not assume a spiral form, as this would set up other damaging stresses.

Another drawback experienced with earlier types, the projection of the light in a horizontal direction, had also been got over by arranging the filament in a conical form, the light being thus radiated to a greater extent in the direction required—downwards.

Some experiments made by the American Institute of Electrical Engineers some year and a half ago showed that when first used a 32 candle-power tungsten lamp steadily increased its candle power to 36, after which it again declined, reaching its original candle-power after 650 burning hours. A similar characteristic was to be found in tantalum lamps. It was believed by many people that an old lamp consumed more current than a new one, but this was not so. The current used was the same, but being old it gave less light; hence its efficiency was lower.

A series of microscopic photographs illustrating the change effected in metal filaments after being used was thrown on the screen. The effect was most marked in the case of those used on alternating currents, and was proportionate to the number of hours during which they had been burned.

Another series illustrated numerous types of metal filament lamps and the various methods of supporting the wires, showing the real effort that had been and was still being made to produce a thoroughly satisfactory lamp for practical use.

It had been found that the light given by metal filament lamps was partly composed of ultra-violet rays, a fact which demanded our attention, inasmuch as these rays were very injurious to the eyes. The difficulty had been overcome by manufacturing a lamp of "Euphos" glass, a slightly tinted glass which, while it eliminated the injurious rays, did not obstruct the ordinary light to any appreciable extent.

In conclusion, Professor Morris expressed his thanks to those firms who had kindly provided him with numerous samples and specimens illustrating their manufactures, which he invited those present to inspect after the lecture. Messrs. Edison & Swan, The General Electric Co., and Messrs. Siemens Bros. were specially mentioned.

OUR CONTEMPORARIES FROM OVERSEAS.

THE *American Architect* (New York) contains a full set of geometrical drawings, plans, sections, and elevations of the Graduate College, Princeton University, New Jersey, of which Messrs. Cram, Goodhue & Ferguson are the architects.

Deutsche Bauzeitung (Berlin) illustrates the new King's Colonnades in Berlin, and the new Stadt Theatre at Hagen in Westphalia, and continues its illustrated description of the new Stadthaus at Berlin, of which Dr. Ludwig Hoffmann is the architect.

The *Western Architect* (Minneapolis) gives views of the People's Savings Association building, Toledo, Ohio, and other works of Mr. E. O. Fallis; also of a series of water towers by various architects, Mr. Fallis, Mr. Robert D. Kohn, Mr. G. E. Wiley, Mr. Clarence H. Johnston, and Mr. Geo. R. Mann.

The *Architectural Record* (New York) has an interesting and well-illustrated article on Toledo; another on new New York houses, which are not all beautiful or even possessed of the charm of Pennsylvania farmhouses, on which Mr. Aymar Embury II. discourses. Mr. M. Sloan continues his series of reviews of the architectural treatment of concrete structures.

Berliner Architekturwelt (Berlin) contains this month much domestic architecture, prefaced by an article on the Gartenterrassenstrasse of Wilmersdorf, from which many of the examples of houses are drawn. A design for a Rathaus at Klausenburg by Herr A. Szende, and for a synagogue by Herr Richard Ziegler, with some mosaic cartoons by Wilhelm Köppen, afford a change; and the Föhrer Bridge at Berlin is a good attempt to give architectural character to a piece of engineering.

La Construction Moderne (Paris) illustrates a successful block of artisans' dwellings in the Boulevard Bessières, Paris, and a prize design in the Concours Roux at the Académie des Beaux-Arts.

Moderne Bauformen (Stuttgart) is a monograph on the work of Professor Fritz Schumacher as exemplified in the new public buildings of Hamburg to the tune of sixteen and a half million marks, principally schools and hospitals of various kinds.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Railway Unrest.

Sir,—In spite of the fact that the Trade Unions were given a monopoly of representation, so far as the men were concerned, on the Royal Commission they are again threatening a general strike because the Report of the Commission was not to their liking.

The Report of the Royal Commission appointed to inquire into the Sheffield outrages in the sixties of last century said: "The power of working, and consequently the value of a man's labour, varies in different individuals according to their skill, their strength, and their industry. The workmen who think it for their advantage to combine together in the disposal of their labour are no more justified in constraining any other workman who does not desire such association to combine with them—to bring his labour into common stock, as it were, with theirs—than an association of capitalists in constraining an individual capitalist to bring his capital into common stock with theirs; and it is the more important that the law should protect the non-unionist workman in his right freely to dispose of his labour as he thinks fit, because, standing alone, he is the less able to protect himself."

The Report of the Royal Commission just issued is in complete harmony with the Report of 1869, for in it the Commissioners say: "Men have the right to determine their engagement by giving lawful notice, but in the exercise of their freedom in this respect they should not, in our opinion, be permitted to incite or coerce by threats or any form of intimidation men who desire to give their labour." This is encouraging, for thus far we may claim that our country is

A land of settled government,
  A land of just and old renown,
  Where Freedom slowly broadens down
From precedent to precedent.

And as the great majority of the workers are not members of Trade Unions it will so remain, if all who are opposed to tyranny wil bestir themselves.

There is an object-lesson for us in the Australian Commonwealth, where the Trade Unions have obtained such influence that the Department of Home Affairs have just issued a circular, from which I quote the following:—

"Please note that the Minister has directed that absolute preference is to be given to unionists; see that this is given effect to in any future engagement, and in discharging any present men, discharge non-unionists first.

"The Minister also desires at once to be furnished with a list of non-unionists employed. Please make necessary inquiries and supply at once."

This should bring matters to an issue unless liberty in the Commonwealth is to be a thing of the past.

We are fortunately in no fear of the issue of such circular from any Department of our Government, but ther is among many of the Trade Unions in this country the sam evil spirit that dictated the Australian circular, as is eviden from the following:—Mr. A. Bellamy, the President of th Amalgamated Society of Railway Servants, in addressin the recent annual meeting of the Society at Carlisle, sai they would use their organisation *illegally* if necessary obtain their demands. While Mr. J. E. Williams, th Secretary of the Society, issues a "warning" to non-uni railway workers that if they remain outside the Union the will no longer be considered "fit fellow-workers."

Surely these things will not be tolerated, and as a memb of the Committee for Promoting the Formation of Societie of Free Workers I appeal to your readers for support for th Committee.

Full particulars of the movement may be obtained b applying to Mr. Mark H. Judge, Chairman, 7 Pall Mal S.W.—I am, your obedient servant,

Dysart.

Buckminster Park, Grantham: November 15, 1911.

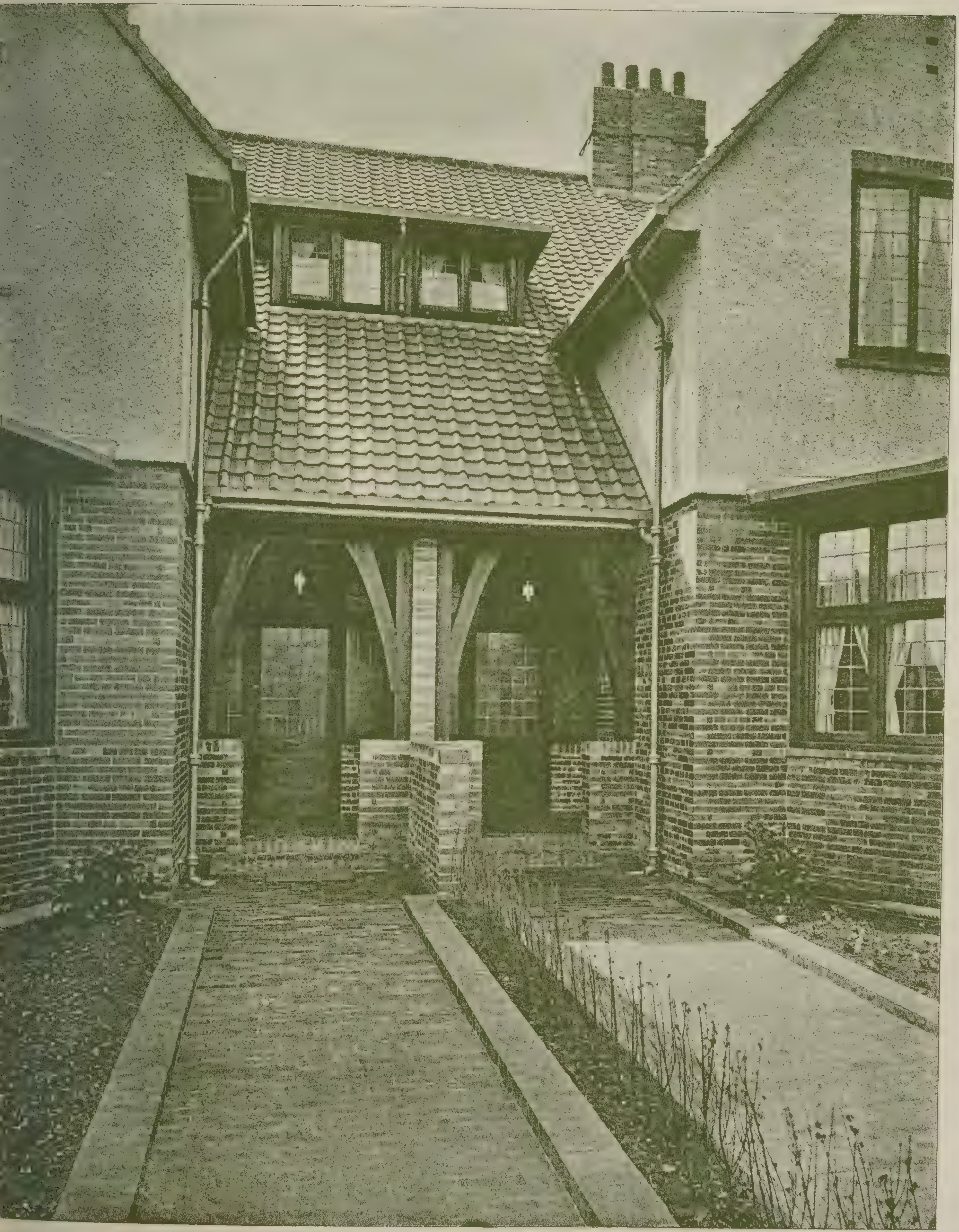
GENERAL.

In connection with the Faculty of Engineering an Architecture at the University College, Dublin, the Professo of Architecture will deliver a series of lectures, which commenced on Thursday, 16th inst., in the University Colleg 86 St. Stephen's Green. The lectures will be resumed eac Thursday during the present month at 4.30 p.m. Admissio will be free by ticket. The School of Architecture has bee established in connection with the Faculty of Engineerin and Architecture, and the courses of instruction at th school are designed to provide a liberal and professiona training of a full University standard for students intendin to practice as architects. Students desiring to enter th schools with a view to proceeding to the degree of B.Arch should communicate with Professor W. A. Scott, withou delay.

A new building, comprising a Central Library and a adjoining Art Gallery, at the junction of May Bell Aven and Queen Street, Blackpool, was opened last week. Th library extends along a part of both thoroughfares, while th art gallery flanks the Queen Street front. The library ha been built at the cost of Mr. Andrew Carnegie, who contr buted £15,000 for the purpose, under the usual condition and the site, costing £5,800, was provided by the Corporatio The art gallery is the gift of Mr. John R. Grundy, R.C.A and Mr. Cuthbert C. Grundy, R.I., V.P.R.C.A., of Blac pool. The design for this new handsome block was prepare by Mr. James Lockhead.

Arising out of the Tattershall Castle controversy, h Majesty's Office of Works have issued a letter to Coun Councils calling attention to the Ancient Monuments Prote tion Acts, 1882 and 1900, which provide for the guardia ship of monuments of historic, traditional, or artistic interes The letter states that the matter is of national importanc and that the expense involved in some cases would be mo fittingly borne nationally than locally. The First Co missioner hopes that the County Councils will not hesitate draw his attention to any monument worthy of permanent adequate protection.

The new chapel at Worksop College, Nottinghamshir was opened on Tuesday, the 31st ult. It was designed by S Aston Webb, R.A. (who also has charge of other exte sions at the college), and has been erected at the expense Lord Mountgarret, who gave £10,000 for the purpose. Th chapel is a red brick building, treated in free Gothic, wit stone dressings and traceried windows to harmonise with th rest of the college. Externally it is divided into six bay with two lofty turrets to mark the east end, which is furth accentuated by a large niche, containing a figure of St. Cut bert, placed in the upper part of the east gable. The chap is approached from the east side of the school building throug a large ante-chapel, and will accommodate 450 boys. Inte nally it will be finished in plaster, with brick bands abo an oak dado, and covered with an oak dado painted an decorated timber barrel ceiling. The chancel has a stor vaulted roof, and the whole internal effect will depend upo its great height and graceful proportions. The total lengt including the ante-chapel, will be 128 feet, the width 36 fee and the height to the apex of the roof 56 feet.



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SEMI-DETACHED HOUSES AT BLYTH: ENTRANCES.

Mr. EDWARD CRATNEY, Architect.

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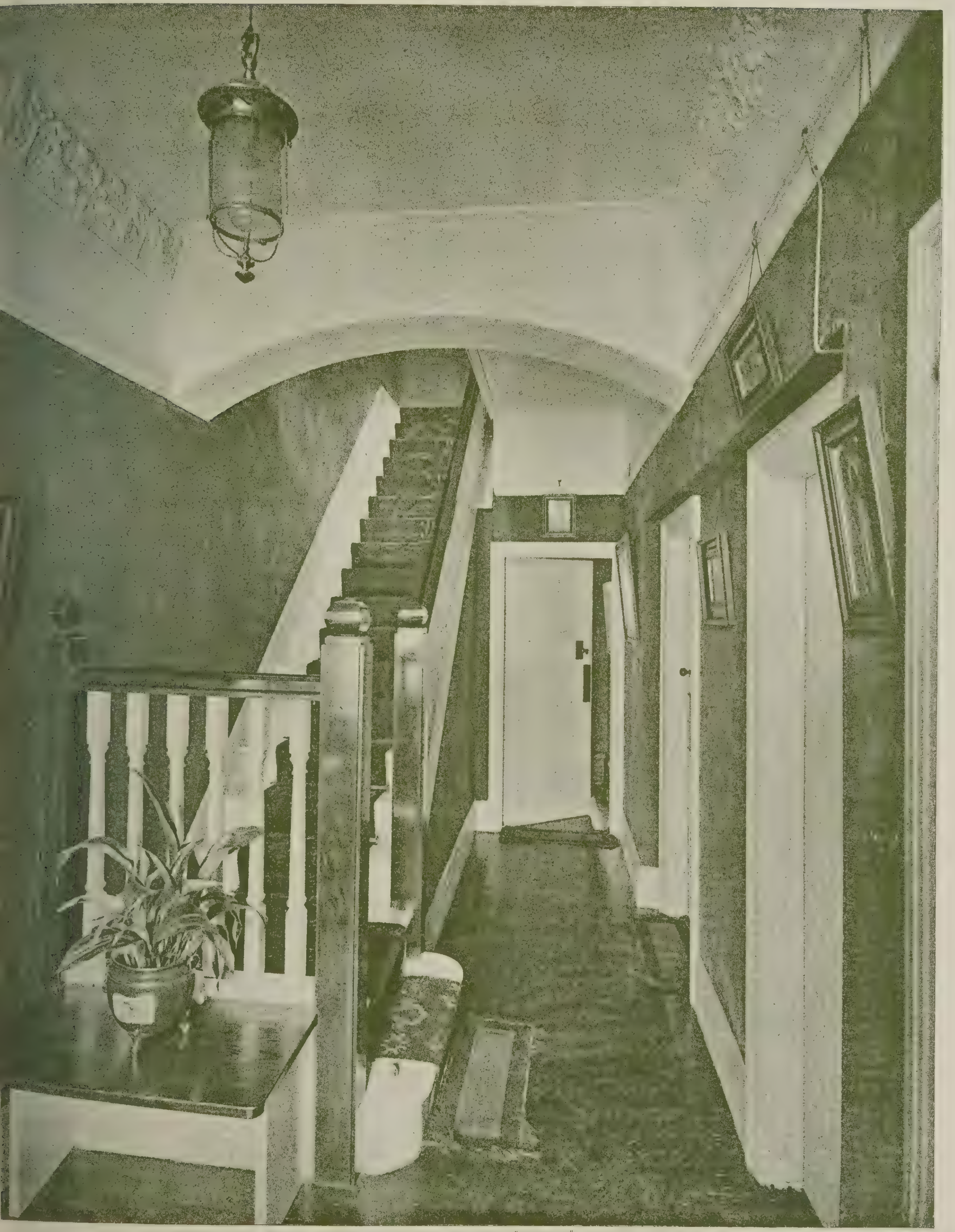
The Architect, Nov: 17th 1911.



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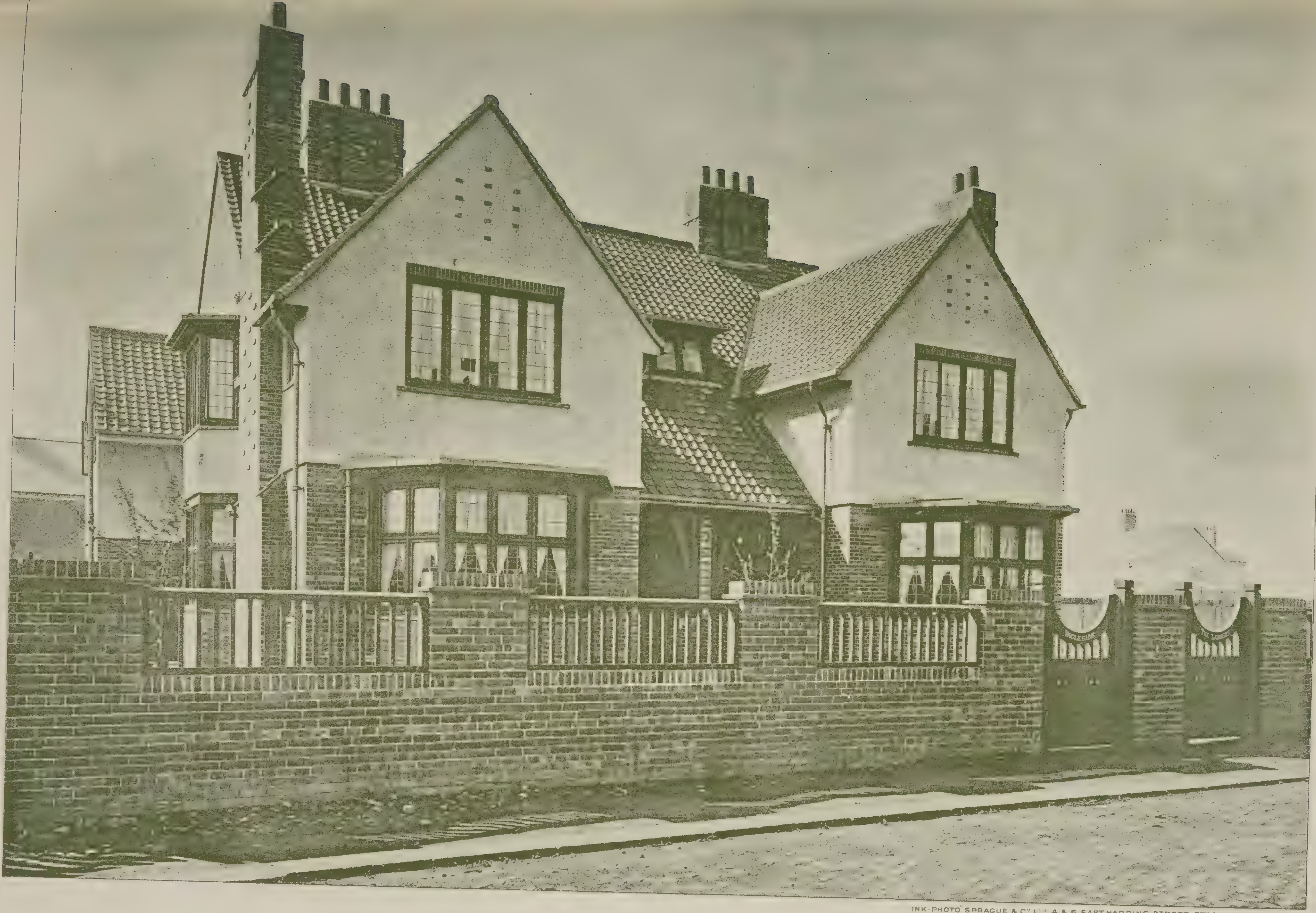
SEMI-DETACHED HOUSES AT BLYTH: HALL.

Mr. EDWARD CRATNEY, Architect.

UNIVERSITY OF ILLINOIS.

The Architect, Nov: 17th 1911.



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SEMI-DETACHED HOUSES AT BLYTH: NORTH FRONT.

Mr. EDWARD CRATNEY, Architect.

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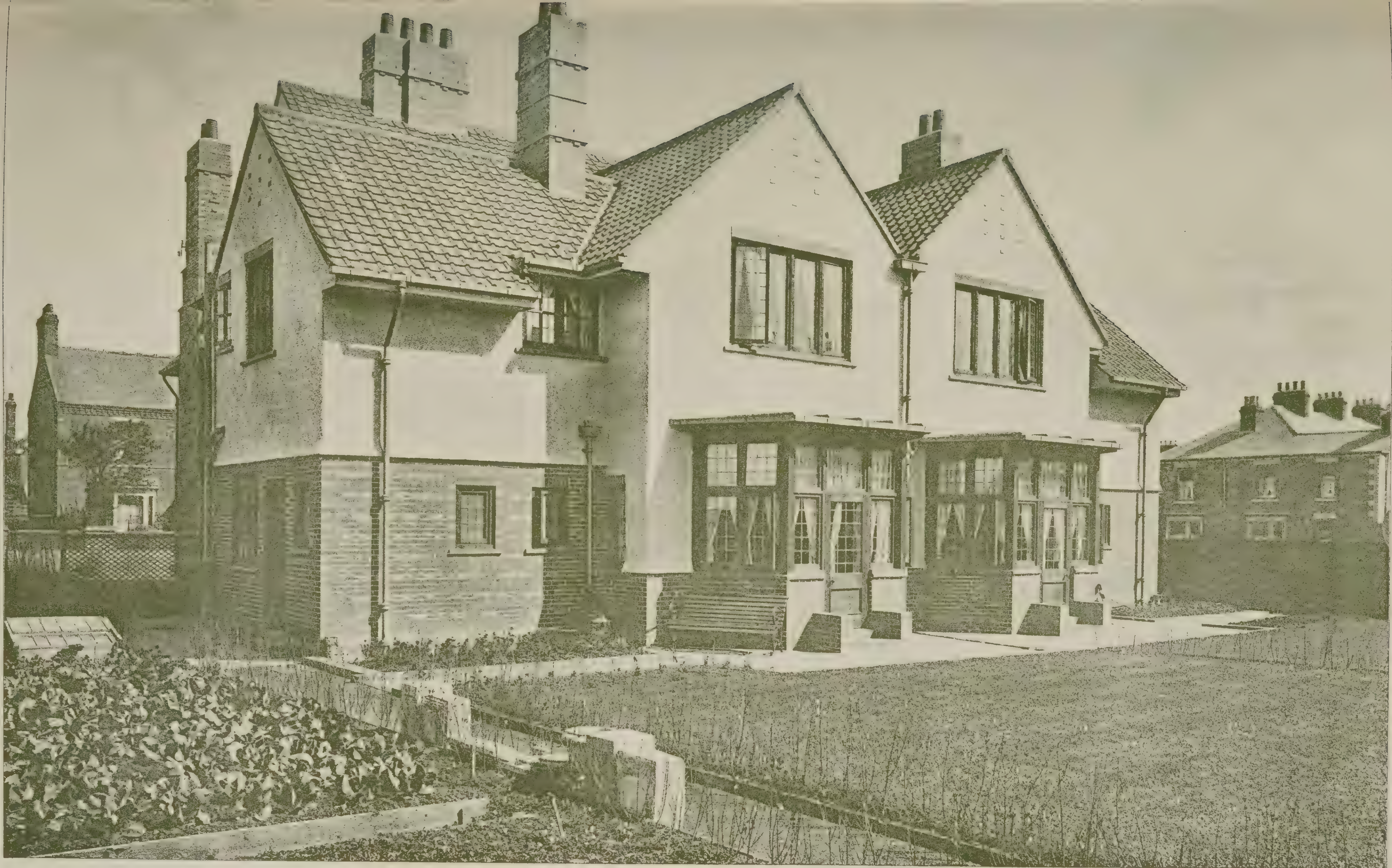

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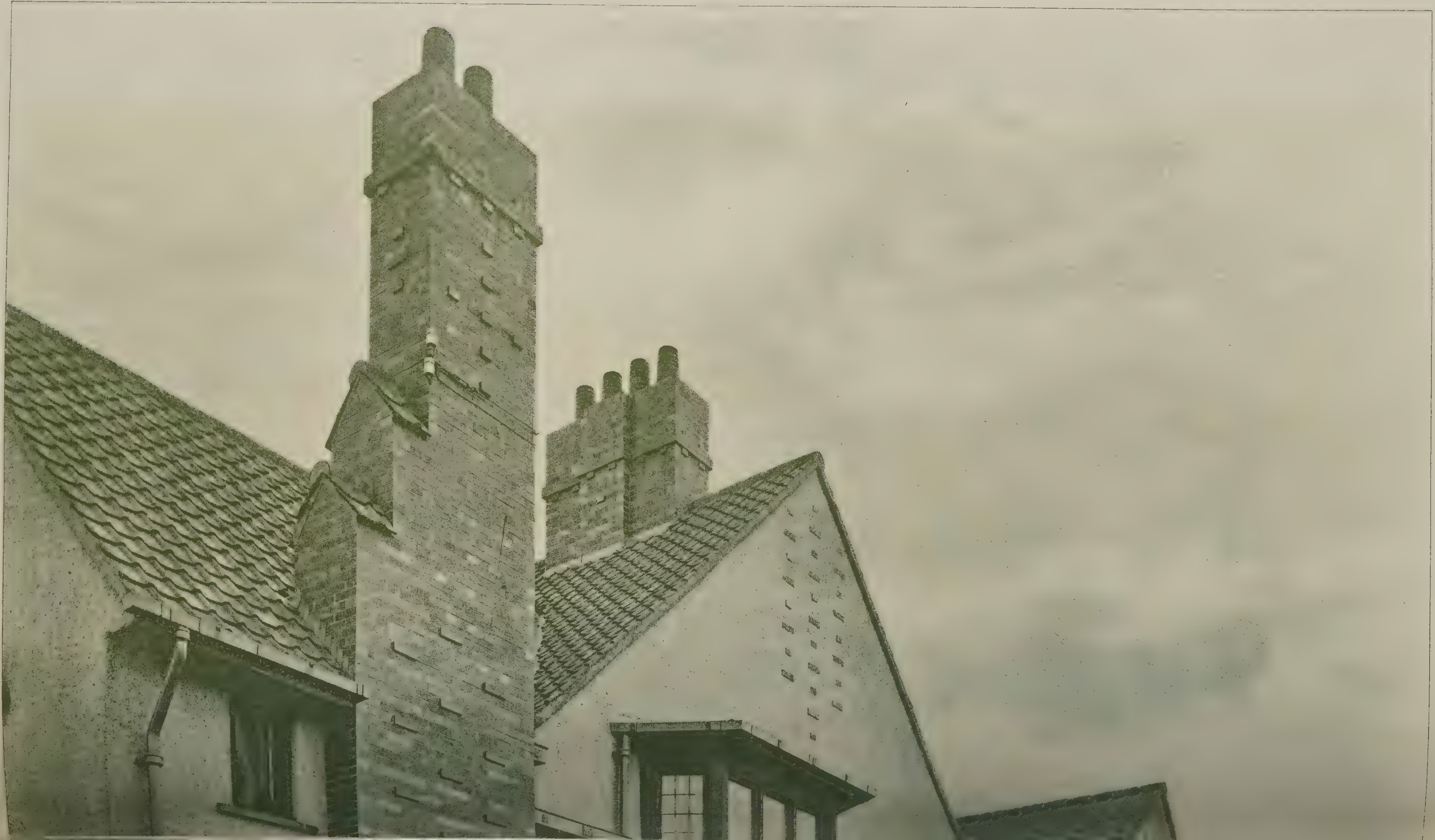
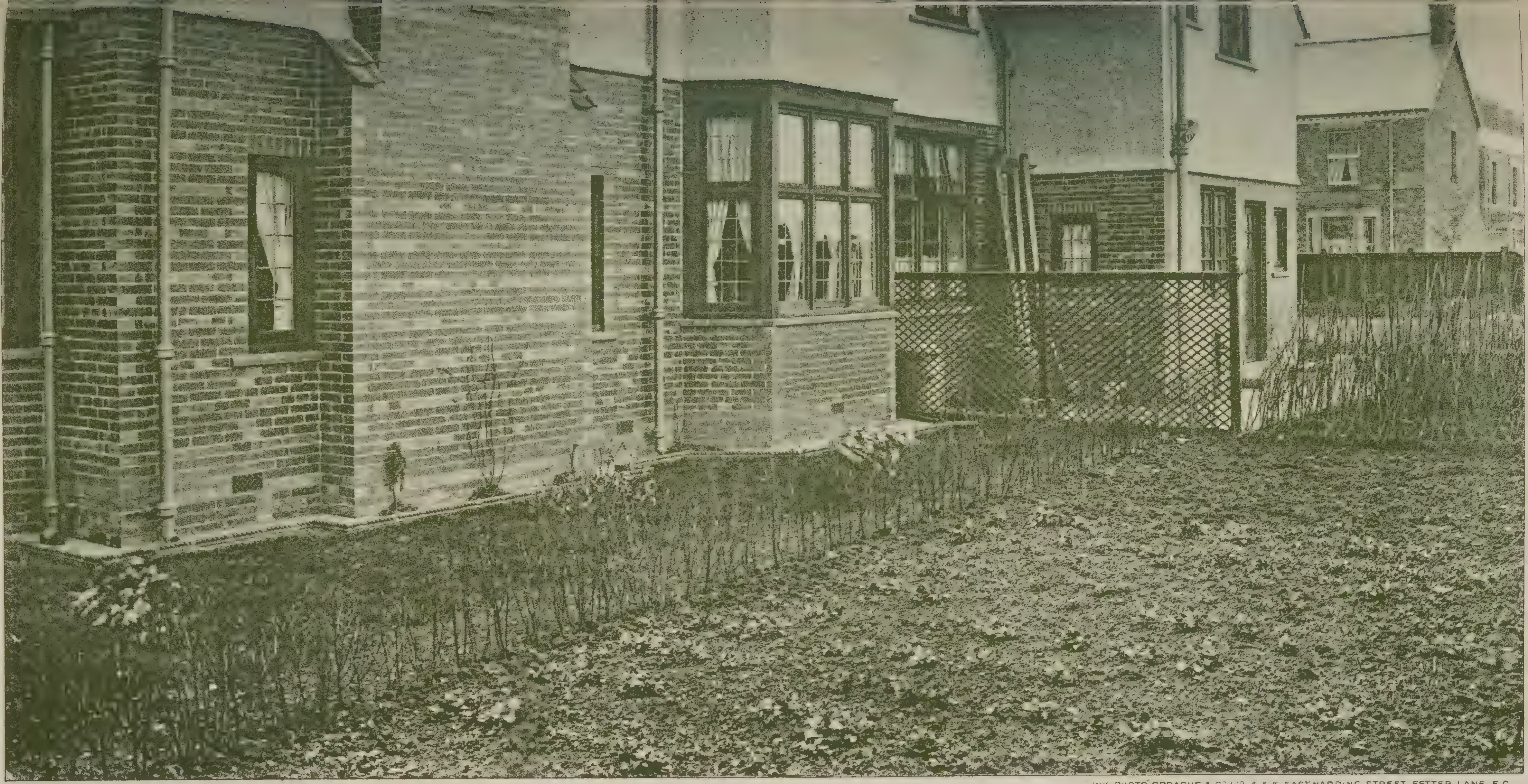
SEMI-DETACHED HOUSES AT BLYTH: SOUTH FRONT.

Mr. EDWARD CRATNEY, Architect.





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SEMI-DETACHED HOUSES AT BLYTH: WEST VIEW.

Mr. EDWARD CRATNEY, Architect.

The Architect.

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FORTHCOMING EVENTS.

Monday, November 27.

Architectural Association: Paper entitled "Thoughts on Jacobean Architecture," by Mr. A. T. Bolton, F.R.I.B.A., at 7.30 P.M.

Surveyors' Institution: Adjourned Discussion on a paper entitled "The Development of Building Land," by Mr. J. J. Dones, at 8 P.M.

Tuesday, November 28.

University Hall of Residence, Chelsea: Lecture on "Beauty in Civic Life," by Mr. Edward Carpenter, at 8.15 P.M.

Junior Institution of Engineers: Paper on "Modern Methods of Water Softening and Purification," by Mr. J. J. Lasson, at 8 P.M.

Thursday, November 30.

Leeds and Yorkshire Architectural Society: Paper on "Old Leeds," by Mr. A. Mattison.

Architectural Association Camera Sketch and Debate Club: Paper on "The Reform of the Building By-laws," by Mr. F. S. Chesterton, at 7.30 P.M.

Manchester Society of Architects: Students' Meeting at 6.30.

Friday, December 1.

Birmingham Architectural Association: Paper by Mr. Gerald C. Horsley, F.R.I.B.A.

ENGLISH IRONWORK.

LTHOUGH we cannot claim for Englishmen any superiority over the craftsmen of other countries o have been workers in iron, we can at least congratu- e ourselves that throughout the greater part of our art tory English ironworkers have produced excellent mples of the smith's craft. They may not equal the est specimens of Belgium, France, Germany, Italy, l Spain in costliness, in elaboration, or even in beauty, they have their own charm and individuality, and, refore, are worthy of our study.

As a help to this study we shall find useful Mr. Starkie rdner's new book* on English ironwork of the seven- nth and eighteenth centuries, even although it is ited to the development of exterior smithcraft. We appreciate Mr. Gardner's restriction of the subject- ter of this volume to exterior work, for the plenitude examples still existing of such work from the seven- nth and eighteenth centuries is overwhelming to one who would attempt an historical and, still more, analytical account.

A brief sketch of the history of mediæval ironwork the hiatus which seems to have occurred in English ithcraft from the close of the Wars of the Roses forms opening chapters preceding the more detailed descrip- n of the work of the seventeenth and eighteenth turies. The earlier buildings of even the seventeenth tury lack both quantity and quality of smithcraft as pared with what was being done on the continent of rope during the same period, and it is not until the ent of Jean Tijou that smithcraft in England began ake a prominent position amongst the arts allied to lding.

Tijou certainly exploited the resources of smith's work wrought iron to their fullest extent, and, indeed, in his k of designs even exceeded the legitimate limits of craft, for many of the designs "are irrespective of struction or technique, and impossible of execution." refore the designs as illustrated were frequently con- rably modified in execution. Mr. Gardner points out t Tijou's personal skill as an embosser resulted in the cealment to a large extent of the true smithcraft of ging by the introduction of a wealth of acanthus, ettes, masks, draperies, eagles' heads, &c., which he oduced in profusion whenever he had a free hand.

This exuberance of invention which characterised Tijou's designs may in part have been the cause of the apparent coldness between him and Sir Christopher Wren, for although Tijou's ironwork is principally an adornment or adjunct of Wren's buildings, neither man makes mention of the other. Mr. Gardner champions the fame of Tijou against that of Huntington Shaw, whose claim to eminence is stated by the author to rest on a gratuitous assertion, added to his tombstone or memorial tablet 123 years after his death, that "he designed and executed the ornamental ironwork at Hampton Court Palace."

We are not altogether satisfied with the conclusiveness of the evidence on which Mr. Gardner disposes of "the mystic Huntington Shaw." It is true that there is documentary proof that Tijou, and not Shaw, was paid for ironwork at Hampton Court and at St. Paul's Cathedral. But though he died in London, Shaw was commemorated by a monument in Hampton Churchyard, and the contemporary inscription thereon stated that "he was an artist in his way." His monument was enclosed with an iron railing, an illustration of the monogram on which, "H.M.S.," is given in Mr. Gardner's book, and in allusion to which he says, "Not the least charming of the innovations due to Tijou are the delicately interlaced monograms, in place of heavy shields of arms in the overthrows of gates. This feature is already seen in Daniel Marot's designs, and had been much used by English locksmiths in their key bows." The delicacy and pure smithcraft of these monograms do not seem to accord with Tijou's predilection for embossed work, and may quite possibly be due to the traditional craft of English associates of Tijou, amongst whom Shaw may have been one.

Tijou's work undoubtedly required the assistance of a large and able staff of highly skilled craftsmen, and Mr. Gardner presumes that some at least of these may have been Englishmen, amongst them Robert Bakewell, of Derby, the brothers Robert and William Edney, of Bristol, of whose works we are given illustrations and a critical description. Satisfactory historical proof of the association of these craftsmen with Tijou does not appear to be forthcoming; we are left to presumptive evidence in their work of the relationship of master and disciple. But when he proceeds to an account of the English School of Smiths Mr. Gardner demolishes his own evidence by his picture of the craftsman passing from one employer to another, learning and carrying all the peculiarities in forging and style from one workshop to another, resulting in the number of new forms of scrolls,

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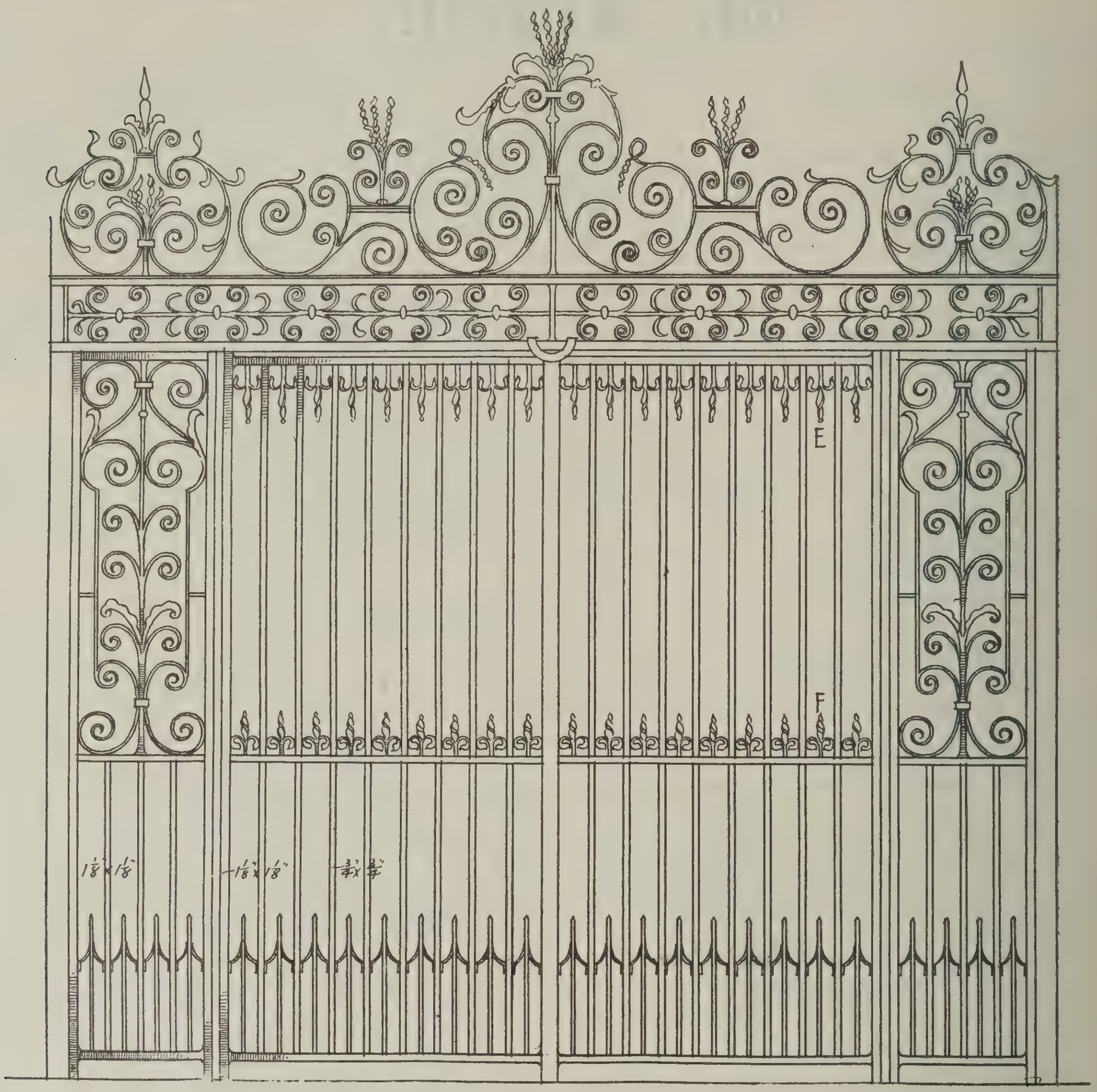
* *English Ironwork of the Seventeenth and Eighteenth Centuries.* nistorical and analytical account of the development of erior smithcraft. By J. Starkie Gardner. With 88 collotype plates a photographs chiefly by Horace Dan, architect, and upwards of 5 other illustrations. (London: B. T. Batsford. 42*s*. net.)

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



WROUGHT-IRON GATE AT ENFIELD.—Measured and Drawn by "Plato."

finials, drops, dog-bars, &c., introduced by Tijou and his followers, or his contemporaries, becoming the common and accepted and traditional elements of English smithcraft.

Mr. Gardner does not venture to claim that Thomas Robinson and Thomas Coulbourn, who shared the work in St. Paul's with Tijou, were his disciples, and he is therefore forced to the admission of an English School of Smiths.

The book of designs, produced by Tijou, does not even prove that Mr. Gardner is correct in assuming that Tijou was the maker of ironwork accredited to him because therein illustrated, for we are told that a design is included for a staircase balustrade at Trinity College, Cambridge, for which one Partridge, of London, was paid in 1691-92, shortly before the publication of Tijou's book.

All of which goes to show that our author has attempted an almost impossible task in the compilation of a veracious history of English smithcraft, but we owe him thanks for the attempt and for the unearthing of such facts as are available, even though we forbear the unreserved acceptance of his deductions from similarity of design and technique. We can, at least, agree that the influence of Tijou and of the architect, Daniel Marot, to whom Tijou himself was indebted, was an important factor in the great and glorious development of smithcraft in England in the later seventeenth and the eighteenth century, but although we are glad to have rescued from obscurity the names of some of the master smiths of the period we are forced to recognise that the wealth of the productions that still exist must have been produc by many skilled craftsmen and artists whose names a still unknown. Their works are, many of the gloriously represented in the admirable illustratio which make Mr. Starkie Gardner's book an inten pleasure to peruse and to admire.

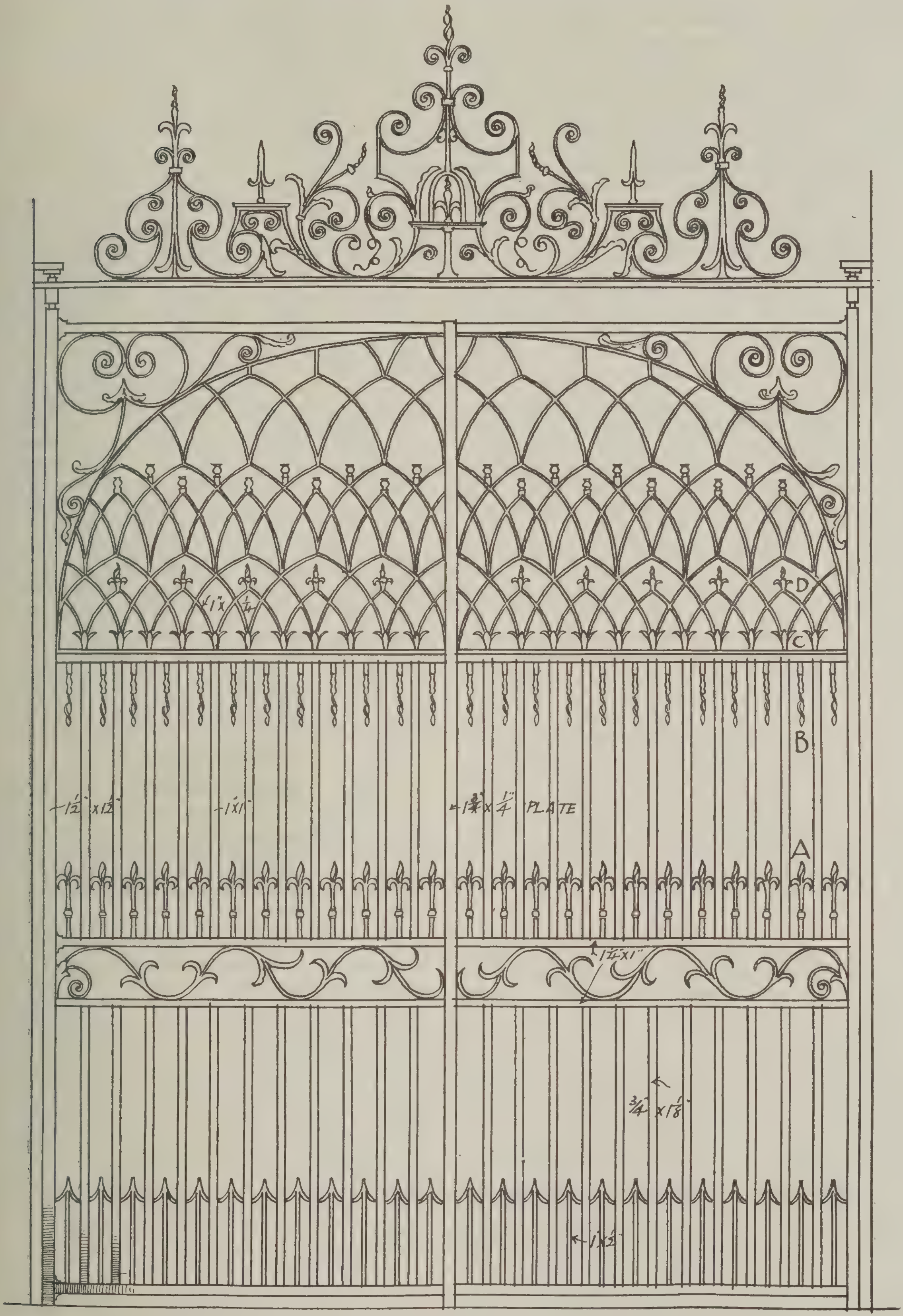
WROUGHT-IRON GATES AT ENFIELD.

THE drawings show two simple but good examples c English wrought ironwork. The narrower of tl two gates is hung to panels, with a lintel over and elaborate overthrow on top. The other example is ve uncommon, with curious intersecting tracery in the upp panels.

NOTES AND COMMENTS.

At last Great Britain will have its Prix de Ron students in architecture, in sculpture, and in decorati painting by the happy development of the British Scho at Rome announced at the annual meeting of subscriber of which we give a report elsewhere. These prizes w naturally become, as in France, the highest recognitic of merit open to students of the allied arts of architectur sculpture, and painting, and the opportunity they wi afford to genius for extended study will, if rightly use be of high value to architecture.

" THE ARCHITECT " STUDENTS' SKETCHING AND MEASURING CLUB.



WROUGHT-IRON GATE AT ENFIELD.—Measured and Drawn by "PLATO."

The exhibition of the works of Alfred Stevens, which now open at the Tate Gallery, is an occasion not only obtaining some idea of the genius of the great parted master but for useful instruction in the weldg of sculpture and architecture in design. More than y other man of modern times Alfred Stevens proved his productions the truth of the saying: "There is t one art." If he had not touched the forms of istic expression peculiar to sculpture or to architecre, he would have been a great painter. Incalculable is the loss to British Art of the want of opportunity that prevented Stevens from leaving behind him a vast monument of artistic genius.

In his lecture on "Attainable Ideals" at the Edinburgh Architectural Association, Mr. James Morris rightly said that there might be an ideal in the practical and business as well as in the architectural side of work. An ideal might be of little or great altitude, but to have an ideal at all was to ensure that work could not be altogether poor. The beginnings of art, the desire after the unseen and unknown in primal days, the same elemental desire of, in different environment, touching men still, and the abstract qualities of dignity, beauty, power, and reverence were but different notes sounded in different ages on the human chord of emotion and feeling. Keeping cost of work within the range of a client's purse and purpose, setting face against asking contractors to reduce tenders, and against allowing work to be done at prices which could not pay, thus militating against good work, were business ideals. Art again, besides being creative, was also in no small degree selective, while in yet another phase it was even the visible embodiment of silence. A weak man or a guilty was full of excuses, while strength and innocence were often dumb. Well would it be then for them also so to think in their own art, for in architecture there was marvellous virtue in the silence of a plain, an unbroken wall.

We are glad to know that the Glasgow Institute of Architects is following the lead of the Royal Institute and many Allied Societies in an organised opposition to the evils of competitions, recognising that the increasing tendency during recent years to select an architect only after obtaining competitive plans from a number has become a serious burden to all engaged in that branch of work, owing to the very large outlay involved, combined with the uncertain chance of any return. The Royal Institute of British Architects now debars its members, under penalty, from engaging in competitions the conditions of which are considered unsatisfactory by the Council, and a similar course has been followed by several of the local societies throughout the country affiliated, as is the Glasgow Institute, with that body. After prolonged consideration of the subject, the Institute adopted some time ago in general assembly the principle involved, and a meeting was held to consider the methods to be adopted towards carrying it out, as proposed, in a series of resolutions brought forward by the Council. In the course of discussion considerable divergence of opinion was manifested with regard to some of these, and on a vote being taken, it was decided by a majority to remit the scheme back to the Council for reconsideration in detail.

The lesson of Tattershall Castle and its mantelpieces is bearing fruit, and the Surrey County Council has requested its County Surveyor to compile a list of ancient monuments in the county, a copy of which is to be supplied to H.M. Office of Works, who wrote calling attention to the provision in the Ancient Monument Protection Acts, 1892 and 1900, for the guardianship of monuments of historic, traditional or artistic interest, not only by the Commissioners of Works, but also by County Councils, and assuring the Council of the entire sympathy and approval with which the Commissioners would regard the action of any County Council in this respect. It was clear, the letter pointed out, that in a county rich in monuments the expense of their adequate maintenance from county funds would effectually limit the action of the County Council in this direction, but, as the matter was undoubtedly of national importance, it appeared that such an expense might more fittingly be defrayed from national than from local resources.

At a meeting of the County Council on the consideration of this matter Sir Thomas Skewes-Cox suggested that a new county committee be formed for the purpose. It would be very difficult for the county surveyor to find out what objects and monuments of interest in the whole county might be included in the return. The suggested committee would be able to receive communications from anyone interested in the subject, so that a proper list of value for all time to the county might be prepared. He proposed the election on such a committee of Lord Farrer, the Lord Lie tenant, Dr. Chester, Mr. Campbell-Bayard, Mr. Powe and himself, with power to add to their number gent men, not necessarily members of the Council, who to interest in matters archæological. It was resolved adopt the suggestion.

The reconstruction of the ancient market cross Glasgow has been offered as a gift by Mr. Willi George Black, chairman of the Glasgow Elders' As ciation, chairman of the Open Churches Associatio and a manager of the Royal Infirmary; whilst M Black is president of the Glasgow Day Nurser Association, convener of the Finance Committee of t Ladies' Auxiliary in connection with Bellefield Sar torium, and a governor of the Logan and Johnsto School. The offer was conveyed to the Glasgow Co poration in the following letter from Mr. Black to t Lord Provost:—

"Ramoyle, Dowanhill Gardens,
"Glasgow: November 13, 1911.

"Dear Lord Provost,—My wife and I desire to permitted to offer to our native city a reconstruction the ancient Town or Market Cross of Glasgow, whic erected many centuries ago, had become dilapidated 1659, and was removed in that year. We have lo had this in contemplation, but the difficulty was to how, in the limited space available, the cross could re-erected at or near its proper site at the foot of t High Street. The recent decision of the Town Coun to consider as to a reconstruction of the area forme occupied by the Tontine buildings and other prope appears, however, to offer an opportunity for restori to Glasgow an emblem of the continuity of civic l from remote times, such as is familiar in Edinburgh a other ancient burghs of Scotland."

THE BRITISH SCHOOL AT ROME.

THE annual meeting of the British School at Rome to place at Burlington House on Tuesday, November Professor J. S. Reid, Litt.D., chairman of the Managi Committee, in the chair. In connection with the meeti there were exhibited in the room a large number of drawi showing the students' work.

On the architectural side Messrs. F. R. Barry and Phi E. Webb sent, conjointly, a good set of measured drawi of Bramante's work in Rome; Mr. C. d'O. P. Jack (holder of a travelling scholarship from Edinburgh Mu cipal College of Art), a restoration of the Arch of Titus, w a portion of the inscription to full scale; Mr. W. N. Kees, A.R.C.A., some measured drawings of early Christian a Byzantine decoration from Rome and Venice; and Mr. Prestwich a study of the marble lining of the Pantheon a of the Porta del Palio at Verona. Some large water-colo by Mr. G. Halford included one of the Basilica of Const tine in Rome, the apse of S. Clemente in Rome, and of the Raphael ceiling in the Vatican. Miss B. E. Molyne sent a panel from an ambone in S. Maria in Aracoeli, Ro and a drawing of a tapestry designed by Raphael, in Vatican. Other painters exhibiting were Mr. H. P. H gill, Mr. H. Brown, Mr. Noel H. Leaver, and Mr. E English.

The annual report gives a detailed account of the w carried out by the students.

Messrs. F. R. Barry and P. E. Webb (students of R.I.B.A., admitted 1911) reached Naples early in Mar and after a short visit to Sicily, Naples, and Pompeii, p ceeded to Rome, where they were joined by Mr. J. A. Sla (student of the Architectural Association admitted 191 Their studies in Rome and Florence were confined alm entirely to Bramante's and Brunelleschi's work; while Venice (after Mr. Slater had left them) they made drawi of the Palazzo Grimani and the Libreria Vecchia, and Vicenza of the Teatro Olimpico of Palladio. In July th reached Milan, and thence proceeded home.

Mr. W. B. Binnie, of the Glasgow School of Architectu studied for a month in Rome, studying classical archit tural details in various museums and buildings, and maki a restoration of the details of the Basilica Aemilia; he th proceeded to Florence and made measured drawings of t

rch of S. Spirito; he also studied Renaissance archi-
ure in Venice, Vicenza, Verona, and Milan.

Professor J. S. Reid, D.Litt. (chairman of the Manag-
Committee), in proposing the adoption of the report,
l that it gave evidence of successful work carried on in
nection with the school. Dr. Ashby, the director, con-
ued his remarkable investigation into the ancient history
he Campagna, and has carried out other important tasks.
cial reference might be made to the approaching publi-
on of the first part of a catalogue of the Municipal Col-
ions in Rome. This volume would deal with the Capito-
Museum. The work will be one of which the friends of
school may be proud. It is a labour of love, carried out
the co-operation of a number of distinguished scholars.
pleasant relations between the school and the Roman
ols of other nations had continued. Since the present
ion opened a very satisfactory number of students had
taking advantage of the facilities for study offered by
school. In connection with the great exhibition at Rome,
school were specially interested in the exhibition of casts
originals to illustrate the art of the Roman Empire
ch was housed in the Baths of Diocletian. It was the first
mpt to give a comprehensive view of the art of the great
ian world, and it will assuredly make an epoch in the
ly of that art which has become so interesting in our day.
as regrettable that the number of casts from Roman relics
Britain was not larger. He trusted that in future the new
ety for the Promotion of Roman Studies would be able
ring about a better appreciation of the remains of the
ian age in this country. The exhibition at Rome was in
f proof of the falsity of the idea that the field of study
ented by the ancient Roman world was approaching
austion. Any competent student who visits Rome, and
iders all that lies within his easy reach will soon receive
pposite impression. The scientific exploration of ancient
y is in reality only in its youth, and there are innumer-
tasks which await the scholar. He would venture to
eal to some of the colleges to encourage some of their
ibers to continue their studies in Rome and Athens. It
no uncommon thing to see young men fresh from the
ols almost pitchforked into their life's work as teachers
lassics or history without a moment's pause for higher
y. Would not these gain immensely in efficiency by a
od of residence in one of the great centres of ancient
isation?

There was a great project, continued Professor Reid,
h promised to give the school a new constitution, a more
le life, and a new and worthy home, and to unite at
centre in Rome all the interests of British students who
rt there, not merely archæological interests, but those
h are artistic and architectural, and literary and his-
al. Among the students who have been welcomed at the
ish School during the whole time of its existence, there
been many who have made art, and, perhaps, especially
itecture, their study. Very naturally some of the
ers of the architectural profession in England have
red that there should be in Rome a residential centre, a
el, available for British students of architecture during
r stay in the city. The cramped space which the exist-
school occupies does not permit of the residence of
ents. When the idea of a hostel for architectural stu-
s began to take place, the committee were glad to have
inated by the R.I.B.A. as a member Mr. J. W. Simpson,
had taken a very keen interest in the scheme. It was
that to have two separate and unconnected institutions in
e for the reception and guidance of British students
ld be a misfortune. The committee were therefore very
rous of co-operating with the Royal Institute of British
itects, of which body Mr. Simpson was the member most
ially interested in this matter. Negotiations were car-
on which gave a good hope of a successful issue. But
e the plan was under consideration, the Commissioners
e Exhibition of 1851 entered the field with a more com-
ensive scheme for an institution which should embrace
British artistic and learned interests in Rome. Long
erences took place between the Commissioners and all the
ortant bodies which guard the interest of art studies in
country, notably, the British School at Rome, the Royal
lemy, the Royal Institute of British Architects, and the
ety of Sculptors. The negotiations have advanced so
as to enable Lord Esher, the chairman of the Commis-
ers, to draw up a memorandum. Lord Esher had shown
iling consideration and courtesy during the somewhat
racted negotiations, and given unwearying attention to
problems that have called for solution. That memoran-
showed that some splendid gifts have been made in
herance of the new undertaking. Sir Rennell Rodd (whose services in connection with the scheme have been of the highest value), in speaking of the site of the proposed expanded school, recently wrote: "Anyone who could have seen this site this autumn in all its beauty would inevitably have rejoiced in our prospects. . . . Things have so changed in Rome to-day, rents are so high, and ground so scarce, that it is quite hopeless to expect to obtain a site for a school and a hostel in the centre of the old city. . . . The new site is within easy reach of the Vatican, a couple of hundred yards from the Villa Papa Giulio, and very near the Borghese Gallery. It will be practically included in the Villa Umberto (Borghese Gardens), the most beautiful and characteristic Roman part. It is on high ground, where the air is good and sanitary conditions will be satisfactory. I can only say that our prospects are envied by everyone here. The city will spread beyond us in future, but we shall remain in a garden and park-like area, which will be as essentially Roman as anything can be in a city which, throughout its history, has always been changing." The committee of the British School at Rome believed, concluded Professor Reid, that the completion of the scheme will benefit all students drawn from this country by the many-sided attractions of a residence in Rome. They felt sure that a bright future might be expected for those departments of study which the existing school has had committed to its charge.

Mr. John F. F. Baker-Penoyre, the secretary, then read the memorandum sent by Lord Esher, the chairman of the Board of Management, to indicate the development and nature of the scheme which the 1851 Commissioners are formulating with the assistance of the British School of Rome and other bodies interested in the artistic side of the proposals. The scheme is, however, still under the consideration of the various authorities concerned. Lord Esher, in his covering letter, said: "I sincerely hope that it will not be long before we obtain from His Majesty a Royal Charter of Incorporation for the new institution when we may regard its establishment as an accomplished fact, and look forward to the great results that are eagerly anticipated by all who are interested in the higher education of the country."

The memorandum from Lord Esher is as follows:—

On the Scheme for the Enlarged British School at Rome.

Part I.

(Giving particulars of the development and nature of the scheme.)

In the early part of the year (1911) the Royal Commissioners for the Exhibition of 1851 resolved to establish a system of travelling scholarships in architecture, sculpture, and decorative painting, on lines somewhat similar to those of the French Prix de Rome, and in the course of their inquiries they were advised to make the scholarships tenable in Rome. They accordingly approached the Archæological Institution, known as the British School at Rome, and arrangements were about to be made with that body for providing facilities for the Commissioners' scholars during their residence in Rome, when information was received that the site of the British Pavilion, erected from the design of Mr. Lutyens for the Exhibition of Rome, had been offered by the Italian municipal authorities to Sir Rennell Rodd, the British Ambassador, to be used for the purposes of a British Institution of national interest. The Commissioners saw an opportunity not only of acquiring a building for the use of their scholars but also of rendering a substantial service to the higher education of this country, and, accordingly, with the concurrence of the British School at Rome, they intimated to Sir Rennell Rodd that if the site in question were made over to them, they would be willing to purchase and adapt the building for the purposes of an enlarged British School at Rome, which should be made thoroughly representative of art as well as archæology.

Sir Rennell Rodd, who had in the first instance offered the site to the British School at Rome, subsequently with their concurrence made arrangements with the Italian Government for the transfer of the site to three nominees of the Crown, namely, Prince Arthur of Connaught, President of the Royal Commission, Lord Esher, Chairman of the Executive, and himself, Sir Rennell Rodd. Shortly afterwards Colonel Charlton Humphreys, the head of the firm of contractors who built the Pavilion, and to whom it will revert at the close of the Exhibition, generously undertook to present the building to the Commissioners.

Thereupon the Commissioners, with the co-operation of the British School at Rome, who throughout had acted in a liberal spirit, showing a due sense of the public interests involved, approached various bodies interested in art, notably the Royal Academy, the Royal Institute of British Architects, and the Royal Society of British Sculptors, with a view to enlisting their support in the scheme, and being met with favourable replies proceeded to the work of drawing up a constitution for the new British School.

The object of the Commissioners in taking a leading part in the establishment of the new school is to secure the institution from sectional control. While they desire that the artistic and archæological interests of the school should be managed by experts, they consider it essential that the general control of the school should be in the hands of a committee comprising a sufficient proportion of laymen, along with representatives of these interests. The full details of the constitution are not yet completed, as the desirability of drawing into the scheme various bodies other than those already mentioned, as well as individuals who, though not themselves artists, are immediately interested in artistic education, has made the work of adjustment and division of labour within the constitution a long one.

As to the objects of the new school, it is intended to provide a centre in Rome where advanced students of art and letters may carry further those studies on which they have been engaged in the art schools and universities of this country. Existing scholarships in art enable a student to travel abroad for a short time and gain what inspiration he can from brief periods of study in the great art centres of the world. But it is of the greatest importance that a student should be able, by prolonged study in the atmosphere of a great art centre, to gain a thorough knowledge of the principles underlying the work of the great masters, and by that means to prepare himself for original work in the domain of art he has chosen. Such an opportunity for study and research in archæology and history is already present in the existing institution at Rome, and the union of these two forces—art and letters—is not the least important feature of the new scheme. It is essential that some measure of guidance and supervision should be available for the students during their residence abroad, and it is the object of the school to meet these needs, rather than to be in any sense a teaching institution.

The Commissioners propose to award three scholarships annually, one in architecture, one in sculpture, and one in decorative painting, and as the scholarships will ordinarily be tenable from two to three years, there will be from six to nine scholars of the Commission always in residence. The school will, however, have accommodation for students holding scholarships in the gift of the Royal Academy and the Royal Institute of British Architects, and other bodies, as well as for students of art and archæology pursuing their researches in and about Rome.

The Commissioners believe that a hostel is an essential part of the scheme. Living in Rome has, of recent years, become more expensive for young students working alone, and it was one of the objects of the Commissioners in promoting the scheme to relieve their scholars from material worries of any kind. The living accommodation at the hostel will be necessarily limited, but it is anticipated that the studio, library, and other working accommodation of the building will be sufficient for as many students of art and archæology as may be expected to make use of it.

The first director of the new school will be Dr. Thomas Ashby, the director of the present British School at Rome, and Mrs. Arthur Strong will, it is hoped, continue to give her valuable services to the school as assistant-director under the faculty of archæology. It is proposed to enlist the services of eminent artists, who may be able to pay occasional visits to the school, in order to assist and advise the art students as occasion arises; but from the nature of the work and the high standard laid down for the scholarships, it is not at present considered necessary to provide for the permanent retention of an artist's services in the school.

PART II.

(*Roughly indicating general lines for the organisation of the school.*)

The supreme control of the institution will be vested in a Council, consisting of about thirty members, including representatives of the Royal Academy, Royal Institute of British Architects, and Royal Society of British Sculptors; archæological representatives of the existing British School at Rome, representatives of other bodies, and also individuals likely to be specially interested in the scheme.

It is proposed that a small Executive Committee appointed by the Council should undertake the general control of the school, and that the purely artistic and archæological work should be organised and supervised by committees of experts forming the Faculties of Art and Archæology. The members of these faculties will be selected for their fitness
for the work to be performed, without any regard t
official positions they occupy. The intention is to fo
faculty of art that will gain the confidence and supp
the artistic world as a whole, while a like result is expect
the archæological faculty, the members of which ar
pointed by the subscribers to the existing British Sch
Rome.

A precise definition of the duties of the Executive
mittee and its relation to other bodies is difficult to p
paper at this stage. It is assumed, however, tha
Executive Committee will be the main determining auth
in matters of administration. It would, therefore,
or report for the Council's decision any question of
affecting the school in Rome or in England, prepar
annual report on the whole school for the Council, nom
official representatives of the school for special occasions
make arrangements for an annual meeting. It would
central financial body receiving interest on endowment
investments, and paying salaries, scholarships and
tenance accounts. It would receive from the faculties
hand on to the staff in Rome for recommendation to th
ferent Italian authorities concerned, all application
permessi. It would appoint or recommend to the C
for appointment the officials of the School in Rome,
the date of the terms or sessions, and authorise the a
of officials from Rome for special purposes. It wou
ceive the director's representations, and give decisions o
more important *res domesticæ, e.g.*, the condition o
fabric, the rules of the school, and allocation of quart
students of various departments.

The Faculty of Art would supervise the work o
various students of art who may come to the school
existing scholarships given by such institutions as the
Academy, the Royal Institute of British Architects
Royal College of Art, and other bodies, and would
those students by drawing up courses of study which
fulfil the conditions attached to those scholarships.

It would formulate a scheme for the scholarships in
tecture, sculpture, and decorative painting, to be giv
the Commissioners for the Exhibition of 1851. It wo
responsible for the examination of the candidates, and
nominate the successful candidates for the Commissi
election. It would further lay down courses of study
shall fulfil the conditions attached to these scholarship
supervise the work of these scholars.

It would advise the Executive Committee on all m
concerning the interests of the students under this fa
it would advise the Executive Committee respectin
appointments on the staff in Rome; it would further s
a report to that committee on the work of the studen
inclusion in the annual report.

It would arrange for an annual or periodical exhi
of the work done by students of the faculty, and also p
for the publication of the more important drawings.

The Faculty of Archæology would carry on tho
searches hitherto prosecuted by the existing British
at Rome. It would continue to publish the series of v
(papers of the British School at Rome, Vols. I.-V.), co
ing researches, and also the Catalogue of the Mun
Museums of Rome, on which the school has been at wo
many years. It would continue to carry on topogra
research, and such excavations as are possible. It
like the Faculty of Art, make representations from ti
time to the Executive Committee respecting its intere
the appointments on the staff in Rome. It would co
to administer such Scholarships as the Oxford, Pelhan
christ and other studentships; and it would collect fun
its archæological undertakings. It would hold an a
meeting of its subscribers, at which it would prese
annual report and balance-sheet. The report would b
mitted to the Executive Committee of the enlarged sch
form a section of the annual report presented by that
to the Council.

ENGLISH MEDIÆVAL ARCHITECTURE.

THE sixth of the course of ten lectures now being del
on Thursdays, at 6 P.M., at London University,
Street, W.C., was given on the 16th inst., and deal
"The Early English Constructional Development."

In his previous lecture Mr. Prior had defined the
sitional architecture as not only developing those constr
experiments by which the masses of fabric were sha
into a framework of construction, but also as formu
this new function of architectural matter; that is t
creating distinct expressions of a new style—for ex
the system of shafted piers, pointed arches, and free

in the round. The preceding Anglo-Norman Roman-
e had already resolved the column, the arch, and the
t of the Classic prescription into constructive constitu-
—shaping the pier, recessing the arch voussoirs, ribbing
vault, and arcading the wall. But the English Gothic
further than this, and its speciality was the emphasised
f of constructional items. Its shafts were to stand free
the pier in the mason's audacity of his new art; the
lines were to be accented by deep hollows, the vault ribs
to be multiplied in emphatic rejection of the theory
lassic groining, the walls were to be arcaded range behind
ge till their substance was a honeycomb of shafts and
es. In all this the English mediæval architecture
rts from the method of Continental Gothic. Its style
t no longer be called cosmopolitan, for it grew insular,
ng a genius and ideal different from those which, con-
orary with it, were producing the immense constructions
he Ile de France Gothic.

he marble shaft was the driving force behind this insular
er of English Gothic. The Purbeck marble architecture,
nning in south-east England, established its character
ughout, breaking up and superseding the local characters
ent in Transitional style. The significant peculiarity of
marble shaft was its being turned instead of dressed by
chisel as in the Anglo-Norman buildings. Tournai, in
nders, had been exporting to England its famous black
ble fonts and memorial slabs. There was, however, at
same time a very similar trade of such things in Purbeck
ble. The first certain instance of the use of Purbeck
ts was in the Galilee at Durham (*c.* 1150). At the
ple, Purbeck marble formed a very substantial part of
building (*c.* 1170-1180). At Canterbury marble pillars
inserted in the crypt as substructure for the piers of the
ity Chapel, in order to carry the new work of William
ens. The earliest was a nondescript Romanesque pier
capital, and then, in the work of William the English-
, a few years later, there is an immediate translation into
English Gothic of circular planned capital. At Chiches-
in the work of 1185, there is the same rapid translation
he hands of the Purbeck marble worker. The abacus,
being originally square or octagonal, became circular.
was the first step taken in an important evolution; the
d planning of the abacus influenced the arch moulding,
h began to be developed from a rounded instead of a
re section. Next, the habit of turning omitted the
ing of the crockets, and the capital was made with the
n moulded bell which was the peculiar form of the
y English style. This Purbeck marble trade produced
stone and marble imitations of the shafts, capitals,
bases. The exploiters found the turnings of the shaft
base in the local material was an easier business than
carving of the foliage in the capitals, so the latter were
ed in white stone, in imitation of the Purbeck patterns.
his way the crocket—*i.e.*, the stiff-leaved crocket with its
ing ball which the Purbeck marblers had taken over
Romanesque and enriched with foliage—was, in the
ds of the stone-carvers, spread throughout the Early
lish style and became the foundation of future experi-
t. The governing condition of the marble expression
in the beds only being, as a rule, from four inches to ten
es thick. The shafts are usually about eight inches in
neter and have their detail on a proportionately petty
. The whole result of this English marble style is
rkably distinctive and unlike anything to be seen on
Continent; indeed, it is in marked contrast with the
st constructional scheme of the Ile de France, nurtured,
ne latter was, on the big calcareous stone of the valley
he Seine. The gradual spreading of the south-eastern
ner all over the country, and the ousting of the local
ts, began *c.* 1200. But in the north and west (those two
nct districts of a big quarry craft engaged in church
ling) these crafts absorbed the principle of the marble
, but, carrying them out in their own materials, con-
ed the development of their own character.

ne of the most striking uses of the detached marble
t in North England is in the chapel of the "Seven
rs," at Fountains. The secular churches of Yorkshire,
ever, took the lead in this remarkable architecture.
rley is considered to be the first specimen of the English
od—strengthened as it was by the vigour of the northern
ncraft. York showed an acceptance of southern marble
white stone; in the vaulting the builders fought shy
one, and, like most northern builders, relied on a wood
ng only. The same interest and expression of style can
een in the "Nine Altars" at Durham, a hall 200 feet
0 feet replacing the Romanesque apse.

The modification of the peculiar local style of the West of England, when there were introduced the marble shaft and freestone architecture of the south-east, is as distinct as in the north. The manner of the Wells building in the nave, with its stout pillars and many moulded arches, was conspicuously of twelfth century western stonecraft. The west front of Wells and the choir of Worcester are the great works of the thirteenth century which witness to the extension of Early English style. Worcester choir was probably started shortly after 1200, but its main building took place from 1220 to 1230. The great front of Wells is one of the most notable buildings of English architecture. It was begun in 1220, and, as compared with the lowest storeys of the nave, shows what a revolution had taken place. Yet this English style is of thoroughly English expression—as much in the planning of the front as in the masoncraft. The purpose of display was plainly not the doorways (that are the point of the contemporary French building) but the screen of sculptured figures, and this conditioned the front. The external richness depends here, as in other instances of the grand manner of the Early English, on the shaft and deeply-cut moulding. There is, however, a robustness of detail as well as a deeply-cut sculpturesque expression which makes the front a legitimate development rather than an exact transplantation of the eastern masons.

The most characteristic outcome of First Gothic style is to be found at Salisbury. The cathedral was begun, *c.* 1220 on a new site, being in this respect unlike all the other great contemporary churches, which were rebuildings or additions to existing structures. For this reason it can be accepted as the model for its time, and the record of what was the ecclesiastical dictation to English church-planning in 1220. Salisbury has its own way of building, which is an astonishingly distinct one from that of the contemporary French cathedrals. Here, for example, are no flying buttresses, but the vaults are carried ostentatiously by the wall—which, indeed, is by no means bent on disappearing for the benefit of the vaulting scheme, but exhibits itself in manifest horizontal extension, the vault pier being hardly expressed at all. Compared with French cathedrals that were being built alongside of it, Salisbury is little, of elegant make, small in its parts, certainly inexpressive of the great vaulting construction of Gothic. At the same time it is picturesquely expressive of its ecclesiastical plan—broken in outline, with an interior of many recessed chambers. When its spire came to be built, in the fourteenth century, it made the cathedral a more than usually finished object for a mediæval building, whereas Amiens appears still somewhat unshaped. It is on similar terms, perhaps, that we must accept the English masoncraft—as a more finished, less ambitious, and decidedly less heroic constructive experiment, but accomplishing what it aimed at with a humdrum, practical compromise, not neglecting the French ideals but interlaying them with their own practice.

This building of Salisbury, before its completion in 1280, brought, said Mr. Prior, English building art to its summit of "Mid-Gothic." An extraordinary and rapid evolution of style had occurred from the Anglo-Norman Romanesque ideal of mass and weight to the Gothic ideal of line and elasticity. This evolution expressed a change in the conditions: it meant the replacement of one mastering condition by another. Architecture, as church building, had, up to the thirteenth century, been essentially monastic and had fallen successively under the influences of every reformation or alteration of monastic ideal. But now the control of its expression ceases. There occurred a very distinct and consequential evolution of religious orders in the early thirteenth century—viz., that of the Friars. The Dominicans, and Franciscans, and Augustinians were established in every town in England; their churches were shortly of a style and magnificence that competed with those of older institutions. But there was no Friars' influence on architecture as there had been Benedictine, Cluniac, Premonstratensian, and Cistercian.

ORIEL COLLEGE, OXFORD.

By Arthur W. Martin, M.A.

ORIEL COLLEGE, in point of date of foundation, ranks fifth in the colleges of Oxford, its seniors being University, Balliol, Merton, and Exeter. Its founder, Adam de Brome, was almoner of King Edward II. He was also rector of St. Mary's, which accounts for the close connection that has always existed between the College and the University Church. Adam de Brome obtained his charter of foundation in 1324; for his statutes he took as a model those which Walter de Merton had framed for his College of Merton in 1269. The College was refounded by Edward II. in 1326, when he bestowed on it the advowson and rectory of St. Mary's. The power of the King was, however, rapidly on the wane, and Adam de Brome, prompted presumably by the feeling that his new institution would be safer under ecclesiastical than under Royal guidance, transferred the College to the patronage of the Bishop of Lincoln—Henry de Burghersh—in whose diocese Oxford was at that time included. This arrangement lasted until 1726, when, as the result of litigation, it was decided that the statutes of Edward II. should be preferred to those subsequently granted, and that the College was in consequence a Royal foundation.

The College was known originally as the "Hall of the Blessed Mary at Oxford," but the title soon became altered to that of "Oriel"—the reason of which change is explained in the following way. Shortly after its foundation the College became possessed of a tenement, originally known as Senescal Hall and later as "La Oriole," situated at the angle formed by the junction of what are now known as Merton and Oriel Streets, and occupying part of the site of what is now the Front Quadrangle. Various suggestions as to the meaning of the name "La Oriole" have been made; its significance is by some referred to an architectural detail in the building, by others to the word "oratoriolum," "a place of prayer." However, the former is probably the more likely explanation.

The College must in the first place be briefly considered from the architectural point of view. It should be remembered that, as is the case in some of the other colleges at Oxford, none of the original buildings now remain, and although it is one of the older foundations, it is architecturally contemporary with Wadham—a College which dates only from the beginning of the seventeenth century. A rough idea of what the first buildings were like may be gathered from a drawing by Neale in 1566.

Shortly after its foundation the College began to acquire property, starting from "La Oriole" and extending northward until it ultimately reached to the High Street. The boundaries on the west were Schidyard Street (now Oriel Street), and on the east Grope Lane (now Grove Street). As time went on there arose on the ground now occupied by the Front Quad buildings which formed the original College. These consisted of a chapel on the south side, adjoining Merton Street, which was built in 1373—mainly through the generosity of Archbishop Arundel—a library on the east side, and a hall on the north side. The demolition of the then existing buildings and the rebuilding of the College were begun in 1619. Anthony Blencowe, who was Provost from 1574 until 1618, had seen that the growth in numbers and importance of the Society over which he ruled would necessitate increased accommodation, and on his death he left a considerable legacy for effecting that end. The work was undertaken and vigorously carried on by his successor, William Lewis, who was Provost from 1618 till 1621, and in 1619 the west front facing Oriel Street was erected. This was followed in the next year by the south front facing Merton Street. After an interval which was spent in collecting further funds, the work was continued in 1636, and the Quadrangle was completed by the building of the north and east sides, the whole being finished in a uniform style. The charm of the Front Quad is undeniable, and in its general plan and style of design it may be compared with the Front Quads of University and Wadham, and the Back Quad of Jesus, with which it is contemporary.

As one enters, the Provost's lodgings lie immediately on the left. On the east side is a flight of steps leading to the hall, and passing under a portico, which bears the inscription "Regnante Carolo"—for the work was finished just before the outbreak of the Civil War. This portico was restored in 1897, and is a reproduction of the
much older one which had long ago fallen into decay
had been superseded by a different design. Of the st
over the portico, in canopied niches under semicir
pediments, the two lower are those of Edward II.
Charles I. (or possibly, as certain evidence goes to s
of James I.), and that above is of the Virgin and Ch
recalling the original name of St. Mary's College.

In the hall, which possesses a fine oak roof,
portraits, among others, of Edward II., Queen A
Bishop Butler, Sir Walter Raleigh, Keble, Whately
Arnold of Rugby.

The chapel, which was restored in 1860, and agai
Mr. T. G. Jackson, in 1884-5, does not contain
thing of particular interest. The window on the
side, nearest the entrance, dates from 1767, and
memory of Henry, Duke of Beaufort.

(To be concluded.)

ILLUSTRATIONS.

DESIGNS SUBMITTED FOR BIRMINGHAM OFFICES OF ATLAS ASSURANCE COMPANY.

THESE designs were submitted in competitio
Messrs. Nicol & Nicol for the above buildings
requirements being a dignified scheme to form part
street architecture of Colmore Row, the most impo
position for offices in the city. The façade was to
Portland stone, containing large windows to provide
lighting to the various offices.

Scheme A shows the treatment suggested for a
entrance for the insurance office, in the design of wh
incorporated the emblem of the company—viz., Atlas
porting the world, a piece of sculpture to a large sc
the round, which would, with its architectural setting
great distinction to the building. The fenestration
upper part is so arranged as to concentrate the inter
the single piece of sculpture, and to gain effect b
contrast of plain surfaces with the rich centre. The
is crowned by a colonnade to the top storey, thus pro
the horizontal lines necessary to give dignity to the
treatment below.

Scheme B is designed to be the outward expressi
a plan having two entrances, which are on either si
a large window lighting the general office. This trea
at once suggests the idea of a large central feature fl
by strong vertical lines. In this case it is worked
the use of a large semicircular arch for the main then
the keystone of which is placed the figure associated
the name of the company. The wall surface beneat
semi-arch is recessed slightly to give the necessary
and is enriched with an attached Ionic order, the c
of which is at the springing of the arch, the lines
columns being carried up to its soffit, a favourite trea
in Classic and Renaissance times.

WROUGHT-IRON GATES, THE MANOR HOUSE, JES NEWCASTLE-ON-TYNE.

THE eighteenth-century gates shown on the accompa
drawing are those to the old Manor House, Jesmo
Georgian house of pleasing appearance. The ironwork
very good quality and of excellent design. Though n
sessing the delicate scroll-work of gates seen further
a good effect is obtained by judicious spacing of pane
use of different sections of metal. The gates are flank
each side with stone piers about 100 feet apart, with
between, the whole forming a charming and thorough
of craftsmanship. The drawing, by "Sans Peur,"
awarded a prize in *The Architect* Students' Sketching
Measuring Club.

ORIEL COLLEGE.

WE commence this week the publication of a num
illustrations of Oriel as part of our series o
Oxford colleges. A descriptive and historical accou
Oriel is given above.

According to the *Board of Trade Journal*, the *F*
Fédérale Suisse of November 8 contains a decree provi
sum of £459,600 for the purpose of enlarging the F
Polytechnic School at Zurich; and plans have been sub
to the Prague city authorities for the erection of a ho
in Lieben which will consist of sixteen sections an
have accommodation for some 550 beds. The cost is
mated at £250,000.

OYAL INSTITUTE OF BRITISH ARCHITECTS.

N ordinary general meeting of the Royal Institute was held at Conduit Street on Monday, November 20, Mr. onard Stokes, President, in the chair.

Mr. Henry T. Hare, Hon. Secretary, in announcing the ease of Mr. Edwin Austin Abbey, R.A., Hon. Associate, cted 1905, said his work was of such a kind as to particuly appeal to architects in so far as it was work of a decorae nature. The Institute, therefore, felt that they had susned a very serious loss in Mr. Abbey's death. The late . D. G. Driver had been Secretary for twenty years of Architectural Association. A great many of the Institue's members had been associated more or less intimately th the Association, and they would realise how great was loss in the death of its energetic Secretary, and how diffit it would be to fill his place adequately. Mr. William rrest Salmon, Fellow, elected 1876, past President of the asgow Institute of Architects, had been a sometime mber of the Institute Council. A vote of condolence was ssed to the relatives of these three gentlemen. The decease s also announced of the following members since the June eting of the Institute: Mr. William Henry Hill, Fellow, cted 1888; Mr. James Pigott Pritchett, Fellow, elected 53; Mr. George Ransom, elected Associate, 1880, and llow, 1906; Mr. John Davidson, Licentiate; and Mr. rry Edward East, Licentiate. Obituary notices of these ntlemen have appeared in the *Journal*.

Mr. H. T. Hare also announced that Mrs. Arthur Cates l presented to the Institute a handsome mahogany cabinet ntaining a large and valuable collection of photographs, incipally of buildings in Italy. A vote of thanks was ssed to the donor.

Among the members attending for the first time since their ction, who came to the table to be formally admitted by the esident, was Mr. Harold Oakley, Licentiate.

The following opening remarks were then made by Mr. Heathcote Statham, in connection with his illustrated view of

Modern French Sculpture.

When my friend Mr. Spielmann gave us his interesting ustrated paper, three or four years ago, on modern English lpture, it occurred to me that it might very well be folved, at a convenient season, by an illustrated paper on dern French sculpture. Perhaps this paper would have ne more suitably, as it was first intended, at the close the session, since it is not a strictly architectural subject, t I was asked to read it now to take the place of another, author of which could not be ready in time; and, after , sculpture is the art most closely connected with architecre, being, as I heard a sculptor once remark, "only a gher form of masonry." But this was said at a meeting of hitects.

That some notice and illustration of modern French sculpre is not uncalled-for is evident from the fact that, as a neral rule, I have found that the only name that anyone ows in England is that of Rodin. I went into a well-own art-photographer's to ask if they had any photoaphs of modern French sculpture, and was told—"Rodin? , yes; we have a number"; and the same was the result the London branch of a French art-photographer's. In ch case they had a whole portfolio of Rodin's works, and all the other eminent sculptors of France only some half-zen stray photographs; and why that was, the usual law supply and demand, of course, explains. As to the origin d the reasonableness of what I call "the Rodin craze," have something to say just now. In the meantime I would rely remark that if people on this side of the Channel ally believe that French sculpture of to-day is summed up the works of M. Rodin it is high time they were told differtly. I believe I may claim to have seen every piece of ench sculpture of importance for nearly a quarter of a ntury back; at all events, I have seen and made notes on e sculpture of every Paris Salon since 1889. And I wonder netimes whether those who profess to be interested in connporary art, but who never take the trouble to visit the lon—whether they realise what the annual sculpture exhiion at the Salon means. It means that for at least a arter of a century back—first in the great central court the old Palais de l'Industrie (originally built for the 1878 xhibition); then the vast space covered by the roof the Galérie des Machines; lastly in the great central court the magnificent Palace of Art built in 1900—there has been en every year a collection of between 800 and 900 new works in sculpture,* some of them, no doubt, commonplace in conception, some of them, perhaps, rather *outré* and violent in composition; but all, I think, up to a good standard of technical execution, and a considerable number of them every year representing, both in conception and execution, the highest style of sculptural art. I do not think the whole history of art can show such an extraordinary evidence of artistic energy and vitality as is displayed in these successive annual exhibitions of French sculpture. I have in most years had the opportunity of recording my impressions on the Salon exhibitions in one or another English periodical (chiefly in the *Fortnightly Review*, or, more lately, in the *Nineteenth Century*), and, as one cannot very well remember, twenty years afterwards, what one's impressions were at the time, I should like to quote a few words that I wrote in closing a review of the Salon of 1890:—

"Taking this as a representation of French sculpture for one year, and comparing it with our little show at the Royal Academy, the contrast is extraordinary enough; and the evidence of mental vigour and power of invention, as well as of execution, among French sculptors is equally extraordinary. . . . In walking through the collection at the Palais de l'Industrie we are confronted by new ideas, new treatment, and new force and meaning imparted to old subjects; we are gaining new poetic conceptions of those subjects; and this not only in isolated instances but in the case of a large proportion of the works exhibited."

If there has been a certain degree of decline in French sculpture the last few years—and I am afraid there has—still I think the impression here recorded as to its intellectual interest would be true, in the main, up to the present moment. It must be admitted, however, that 1890 was rather an exceptional year; that and 1904 are the two greatest years I remember in Salon sculpture.

Now, what do we look for in sculpture? First and preeminently perfectly modelled form, sculpture being the art dealing with form only, without the assistance of colour and perspective; for even relief sculpture is not so much perspective as the super-position of two or more planes of delineation. And hence the nude figure will always be the highest effort and ambition of the sculptor: first, because there alone it is that form has to be refined to the utmost. As Browning puts it in one of his poems, when he imagines someone exclaiming:—

> "'As like a hand to another hand!'
> Who said that, never took his stand,
> Found and followed, like me, an hour
> The beauty in this—how free, how fine,
> To fear, almost, of the limit-line!"

And secondly, that the figure, delivered from the conventional bondage of costume, becomes an abstract thing, not tethered to time or place. And though mere beauty in a figure is in itself enough to justify sculpture, this abstract figure may also be made the means of symbolising an abstract idea, so that sculpture may in that sense become, what Matthew Arnold said poetry ought to be—"a criticism of life." And it is for the frequent recurrence of this effort to symbolise thought that French sculpture of the modern period is, among other qualities, especially remarkable. And to furnish man with an adequate material for such abstract and symbolic form in sculpture, God created marble:

> —"as it were
> Some clear primordial creature dug from depths
> In the earth's heart, where itself breeds itself,
> And whence all baser substance may be worked":

so says the sculptor in "Pippa Passes." And when his bride glances up at the model of a figure of a mediæval German Kaiser in splendid array, he says:—

> "Ah! do not mind that; better that will look
> When cast in bronze":

and he was quite right; marble is too ethereal a material to be prostituted to the carving of tailoring and millinery.

The expression of abstract idea through abstract form is then the highest mission of sculpture. Beyond or below that, what possibilities are there? The actual form and presence of memorable personages, in their habit as they lived, can be commemorated in bronze, though not suitably in marble; or, which is far better, the portrait head alone can be represented, in bronze or marble, accompanied by figures symbolical of the character and career of the person commemorated, which is the favourite way with the French; and here we come round again to the abstract ideal. Sculpture may represent also significant facts and forms from the life of its own day, especially those which are typical rather than merely incidental; though this is a function of sculpture to be used with caution and reserve, lest it should degenerate into mere realism and playing to the gallery. Of all these varied functions of the art of sculpture you will see examples in the illustrations I have to show you.

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* The Old Salon this year contained 868 works, the New Salon (in which sculpture is less prominent) 334, making a total of 1,202 works produced for one year's exhibition only.

Mr. Statham then put on the screen a succession of slides showing typical works of the best sculptors. First came a small group of men now dead. These included Guillaume, Paul Dubois, Carpeaux, E. Barrias, H. Chapu (particular reference being made to his monument to Henri Regnault), L. Gérôme (whose equestrian figure of Bonaparte at Cairo was shown), and Jules Dalou. In the next group came A. Mercié (equally good at vigorous groups like *Gloria Victis*—now in a courtyard of the Paris Hôtel de Ville—and restrained monuments such as *Souvenir*), Gustave Michel, A. Boucher, D. Puech (*The Siren* and *The Muse of André Chénier*), Verlet, Mercié (who contrived to give some dignity to his monument to King Louis Philippe and his queen, Marie Amélie), Jean Boucher (*The Antique and the Modern*), Roger Bloche, R. de Saint-Marceaux (*Genius Guarding the Secret of the Tomb*), and Albert Bartholomé. Of M. Auguste Rodin the lecturer did not speak with unqualified praise. Rodin's work had been exhibited in London and practically ignored before the present Rodin craze.

In concluding his review Mr. Statham pointed out three advantages which the French enjoyed in connection with the advance of sculpture. First, they possessed a place where they could really exhibit it; secondly, the French public was really and intelligently interested in the art; and thirdly, their Government take care to encourage and reward it. If English sculpture was to develop with the freedom of French, one requirement was that the State should be prepared to spend money on it and to take an interest in it. Up to the present any efforts to accomplish this are met with the official reply, "We have no money for it."

Sir W. Goscombe John, R.A., said he had been asked to propose a vote of thanks to Mr. Statham for his most interesting lecture. Mr. Statham had given them such a tremendous lot to think about that it was almost impossible, in proposing a vote of thanks, to touch upon the many most interesting points he had raised. They had had an amazing and bewildering vision of modern French sculpture. Everyone who loved that sculpture would probably have each had their own different selection of examples, but what Mr. Statham had shown was sufficient to suggest what that great intellectual effort meant. Many of the works shown were epoch-making, and looked upon all over Europe as inspirations—things which, during the last twenty-five years, have moved every sculptor to make a great effort himself. One looked upon French sculpture as the last of the three great periods. First came the Greek, then the Italian, and then the French. All over Europe the local schools were more or less echoes of the modern French. There never had been, he believed, a time when France was without great sculpture, from the days of the building of Amiens and Rheims down to the present day. What is more, they have never been tied up to paralysing conventions. Such work as that of our Gibson and Thorwaldsen would have been impossible in French art, in which the conventions of scholarship were vitalised by a most loving study of nature. With the first all nature took a second place, and their thoughts were all for the antique. The mere mention of Rodin's name was a challenge for difference of opinion. But all would agree, whether they admired him or not, that he was an epoch-making sculptor. No sculptor since the days of the Greeks had interested people so much. Rodin was now a tremendous influence. If one considered the epoch-making work of all time he did not believe there was anything more remarkable than Rodin's *St. John*—anything which been more dynamic in its force. Personally he (the speaker) felt very proud that they had got a copy of it in South Kensington, and he felt pleased to have subscribed towards it. In England they only knew of him because the papers found that he made interesting "copy." There were now at least a score of great French sculptors. One of the things which had occurred to him while listening to the paper was that the French seemed to find their true expression in the art and that they had something definite and exact to say. One could not fail to be struck also by the importance of the nude. In expressing abstract ideas one was compelled to go to the nude, for if one went to costume one was connected with some definite date. In England sculptors were now in
an almost pathetic position. All of them were full
enthusiasm and strongly desirous of doing all they coul
produce beautiful things and to make worthy monume
But they were all dominated by the committees for w
they worked. One of the greatest of modern sculptors
St. Gaudens, but he produced scarcely a single nude fig
because American public opinion would not have them.
aim of every American monument seems to be to show
boots, trousers, coat, and watch and chain of the pe
commemorated. The experience of almost all sculptors
that the committees will have all this. In France, howe
one got the State as a great patron, as well as the var
municipalities all over the country. That was why
got two Salons filled with a mass of living work. In
land there was nothing like that; there might be a com
sion from a municipality for a bust of a mayor or a
alderman, but that was all. The one redeeming featur
this country was the Chantrey bequest, and they ha
be very grateful for giving them that chance. In the R
Academy galleries it was only possible to show little thi
otherwise the works would be out of proportion.
public powers of discrimination seemed to depend u
their being able to rub their noses against it in orde
see if it was smooth and highly finished. To impr
there must be in this country more sympathetic commit
and a larger place to show the sculpture. Then per
the British public will begin to appreciate the art.

Professor W. R. Colton, A.R.A., in seconding the
of thanks, said it was a delightful evening such as one ra
got in this arid desert of London. Mr. Statham had st
that one of the greatest qualities of sculpture was its pe
form. But to-day people hardly seemed to think much a
the perfect form of sculpture. When the Greeks did a fi
they modelled it perfectly, however far removed it was
the eye. The Elgin marbles, for example, were so unn
sarily well done, they could not be fully appreciated u
they were brought closer to the eye in the British Muse
To-day all this is not thought necessary. People seen
imagine that the roughest-hewn blocks of marble ha
virtue all their own. Consequently, in a building the hi
the sculpture went the less money the sculptor got. Of cou
he felt the greatest admiration for French sculpture.
there was also a good deal of fine English work, which,
rule, could not be seen. A noteworthy display was that
at the Franco-British Exhibition, and it competed
favourably with the French work shown there. A Fr
sculptor who saw it said that the English had nothing to
learn. The French throw over all limitations. The gr
of dancers, by Chapu, for instance, which is outside the O
House, Paris, was rather too vital and overdone. In m
instances they went beyond what was the legitimate prov
of sculpture. A good deal of what Mr. Statham had
hibited belonged to the more classical school, and posse
reticence, refinement, and reserve. In leaving his work
finished Rodin followed Michel Angelo, who was too
to do so. But Rodin increased the unfinished part to
immense amount. Of course, he had only done this sinc
found that eccentricity paid, as it attracted the public.
first experiment was to bury the base so that the figure see
to be walking on the floor. Then he elevated the next fi
on a pole. The foundation of the whole thing was that R
was a great sculptor. It had also been found out by
school that if one did a figure, that was so much to o
credit; but if one cared to cut it up and exhibit the pi
separately your credit was so much the more enhanced. T
was also great gain by this method. If one wished, it
easy to stick them together again as a whole afterwards.
modern times undoubtedly wonderful sculpture had
produced. Ever since the time of Michel Angelo sculp
have been wishing to say too much. In times when thou
was easily crystallised, there was only one idea to expres

Mr. Leonard Stokes, the president, in closing the dis
sion, suggested that the order of Mr. Statham's suggesti
for an improved state of things might be reversed, for if
public would only appreciate sculpture, the gallery to exh
it in and the Government ready to pay for it would foll
The existing state of affairs here is due to the fact that
public is so unappreciative. Fortunately they seemed t
waking up. He had expected that Mr. Statham would h
endeavoured to demonstrate that the architect was necess
at least in some works. They had heard of a sculptor
became a painter, and of a painter who became a sculp
but not of an architect who became a sculptor. It was in
esting to find that no instance of this had been quoted.
his thanks to Mr. Statham for his paper he would like to
thanks for the most excellent set of slides shown.

Mr. H. Heathcote Statham, in replying to some of the ints raised, said he was quite conscious there were included the two Salons works of vulgar realism. He was not lec- ring on English sculpture, so he had not alluded to the onderful progress he had noticed here during the last enty-five years. What was wanted in this country was eater opportunities and greater encouragement. As to the des, one-third of the photographs he had collected himself d for the others he was entirely indebted to the French ulptors who had sent over photographs of their work. With- t these he could hardly have given his paper.

THE SOCIETY OF ARCHITECTS.

HE first ordinary meeting of the new session was held at 28 Bedford Square on November 16. It was preceded the annual meeting of the students for the election of the mmittee and officers for the year. The Chairman of the udents' Section, Mr. H. V. Milnes Emerson, A.R.I.B.A., esided at the students' meeting and was re-elected, as were so the members of the Committee.

The President of the Society, Mr. G. E. Bond, J.P., then ok the chair, and the minutes of the previous meeting ving been confirmed, the proceedings opened with the mination of twenty-six candidates for membership and five the Register of Students.

The ballot for new members and students resulted in the ction of twenty-nine members and nineteen students. e President then handed Mr. J. R. Leathart, the winner the Society's Travelling Studentship, 1911, the silver dal and a cheque for £10, the latter being the balance of e award of £25. The Chairman congratulated the reci- ent on the work which he had submitted, both in the com- tition and as result of his subsequent sketching tour. r. Leathart's drawings, together with others, were on ew.

The hon. auditor, Mr. Ellis Marsland, presented the ditors' report and balance sheet for the year ended tober 31, 1911, and stated that there was an increase in e revenue over last year of £666, due principally to the crease in the membership, the membership examination ndidates, and on the revenue from publications. The neral expenses had naturally increased somewhat owing to e maintenance of the establishment and new premises, but ere was nothing to call for particular comment in regard the expenditure. The net result was a surplus for the ar of £626, which was a record for any year. The total rplus of assets over liabilities was £2,626, and the loan om the bank had been reduced during the last fortnight om £1,500 to £1,100. In comparing one year with another ey had to take into account the varying character of the rk which the Council was called upon to undertake, and was satisfactory to find that the first year of the Society in new home had been the most successful of its existence, d the action of the Council in thus providing for the needs the Society in the way of accommodation had been justi- d. Mr. Marsland proceeded to refer to the progress of e Society during the past thirteen years, as shown by a art which had been prepared by the Secretary. This owed that the annual income had risen during that period om £710 10*s.* to £3,222, the subscriptions from £559 to ,886, the entrance fees from £8 to £285, and the member- ip from 530 to 1,076. The progressive policy of the uncil had borne good fruit, and ever since they had taken e wise step of raising the annual subscription (a matter ich met with the entire approval of the members at the ne) the Society had continued to prosper in every possible y and had never stood in a more sound condition finan- lly and otherwise than at the present moment, and this in ite of various hindrances which had been encountered ring the past year. The auditors' report and balance sheet re unanimously adopted.

The President then gave his annual address on the posi- n of the Society both in relation to the Royal Institute d the question of registration. The address was given in ll in our issue of last week, pp. 297-299.

Mr. A. E. Pridmore (Vice-President) proposed a hearty te of thanks to Mr. Bond for his most excellent and prac- al address. They could imagine, he said, that it was mewhat difficult for Mr. Bond in his fourth presidential dress to find anything new to say. Every word, however, at they had heard was practical. Mr. Bond had also ven an outline of what had been done with regard to the oposed Registration Bill. The members would recognise e great care taken by the President and Council in seeing at the interests of the Society were preserved.

Mr. G. A. T. Middleton, in seconding the vote of thanks, remarked that there were three things in the address to which one might pay particular attention. The first was as to the work carried on between the Royal Institute and the Society of Architects. On that subject every member of the Committee had to speak with a certain amount of reserve. The success of the negotiations was, however, almost entirely due to the firmness and perfect straightforwardness shown by their President, who had conducted them as perfectly as any man could have done. The Society could not have been led by anyone better. He himself looked upon the educational powers of the Society as of the most importance. The value of the examinations was shown by the greatly increased importance of architecture, and that men going through them are compelled to train. If the proposed examinations were made compulsory, education would become compulsory also. Architecture as such would advance, the general standard would rise, and if the general standard rises so will the standard of those at the top. He felt sure architecture was going to advance very far in the future providing that they could only obtain a thoroughly sound Registration Bill. The latter was what they were all aiming at. Possibly here and there inconveniences would be felt which must be put up with for the sake of future generations, just as England of to-day has been made by the sacrfices of our forefathers.

The vote of thanks was passed with acclamation.

Mr. Geo. E. Bond, in thanking the members for the way in which they had received the vote of thanks, assured them that anything he had done for the Society during the last four years had been done with the greatest possible goodwill. At all times he had had the interests of the Society deep in his heart. He believed that at the present moment they were on the way to success, and he sincerely hoped that before a year had passed the whole arrangements with the Royal Institute will have consummated and that he would be relieved from his onerous position.

LOMBARD STREET AND THE CHURCH OF ALL HALLOWS.*

IN the thirteenth century, after the expulsion of the Jews, the Lombards (or merchants of Genoa, Lucca, Florence, and Venice) succeeded them as the moneylenders and bankers of England, establishing themselves in the street to which they gave their name—Lombard Street. They remitted money to Italy by bills of exchange, and transmitted to the Pope and Italian prelates their fees and the incomes of their English benefices. To these industrious strangers we owe many of our commercial terms, such, for instance, as debtor, creditor, cash, usance, bank, bankrupt, journal, diary, ditto, and even our signs £ *s. d.*, to represent *libri*, *solidi*, and *denarii*. In the early part of the fifteenth century these merchants advanced loans to the State, their security being a mortgage of the Customs duties. Pardons and holy wafers were sold in Lombard Street before the Reformation. One of the celebrated dwellers in mediæval Lombard Street was William de la Pole, king's merchant or factor to Edward III. In 1338, at Antwerp, he lent that warlike and extravagant monarch a sum equivalent to £400,000 of our money. In 1559, when Gresham was honoured by being sent as English ambassador to the Court of the Duchess of Parma, he resided in Lombard Street. His shop (about the present No. 18) was distinguished by his father's crest, namely, a grasshopper. This sign was in existence as late as 1795. Gresham was not only a mercer and merchant adventurer but a banker, a term which in those days meant also "a usurer, a pawnbroker, a money scrivener, a goldsmith, and a dealer in bullion." He was appointed royal agent in Antwerp, where the merchants of the Low Countries subscribed to the King's loans at 14 per cent. interest. He succeeded so well that he was knighted. After his knighthood Gresham seems to have thought it undignified to reside at his shop, so left it to his apprentice and removed to Bishopsgate, where he built Gresham House. It was a vulgar tradition of Elizabeth's time that Gresham was a foundling, and that an old woman who found him was attracted to the spot by the chirping of grasshoppers. The story, no doubt, was an invention to account for the crest. Gresham's wealth was made chiefly by trade with Antwerp, and, dying childless, he made over the whole of his fortune in equal moieties to the City and the Mercers' Company. In the reign of Charles II. the "Grasshopper," in Lombard Street, was the sign of another wealthy goldsmith, Sir Charles Duncombe, the founder of the Feversham family and the purchaser of Helmsley, in Yorkshire, the princely seat of George Villiers, Duke of Buckingham. Sir Robert Viner, the Lord Mayor of London in 1675, and apparently an especial favourite with Charles II., resided in Lombard Street. The Post Office, Lombard Street, formerly the General Post Office, was originally built by this great banker on the site of a noted tavern destroyed in the Great Fire of 1666. At the commencement of the nineteenth century Lombard Street was a narrow, tortuous roadway flanked on either side by dwellings of smoke-blacked brick matching in colour the mud with which coach or wagon, or mail cart, as it passed along, freely bespattered the basement storeys. After about 3 P.M. miserable oil-lamps tried to enliven the foggy street with their "ineffectual light," while through dingy, greenish squares of glass tall tallow candles dimly disclosed the mysteries of bank or counting-house. As six o'clock drew near the district echoed with the din of letter bells, and from every quarter came men, women and children hurrying to post their letters. Then later a long train of gaily-got-up coaches emerged from Lombard Street, bugles and horns sounded, and mails and passengers started on their journey by road into the provinces. Lombard Street, still narrow and dark, now presents a very different aspect. In Plough Court (No. 1), Lombard Street, Pope's father carried on the business of a linen merchant. The house was afterwards occupied by the well-known chemists, Allen, Hanbury & Barry. Mr. Allen was an eminent chemist who found that the diamond is pure carbon. He was mainly instrumental in founding the Pharmaceutical Society, and distinguished himself by his zeal against slavery.

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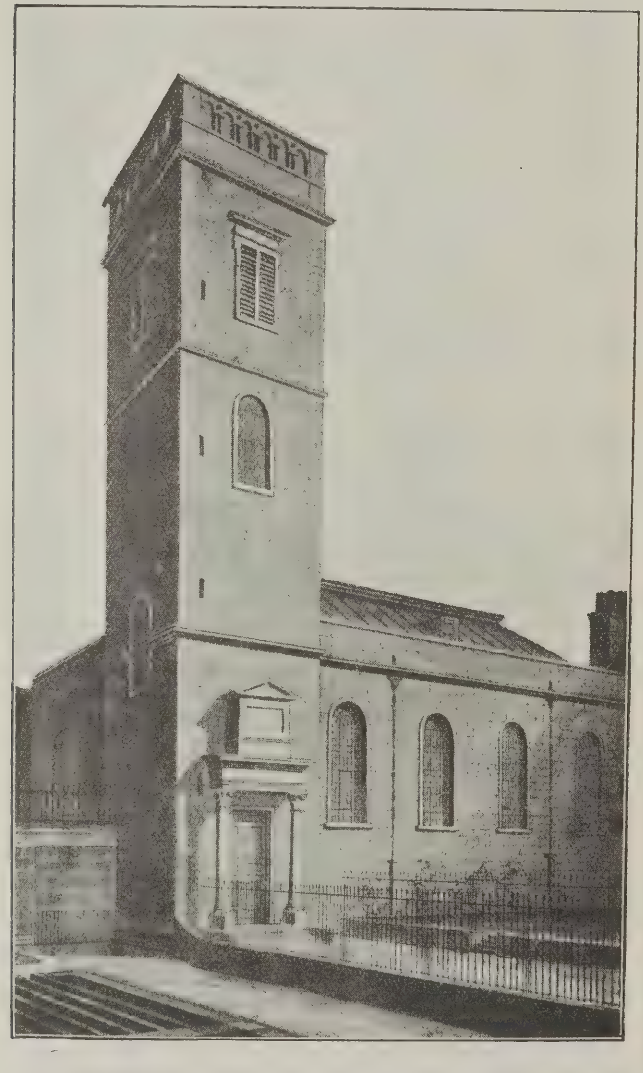
* Read at a meeting of the Upper Norwood Athenæum by Mr. Arthur J. Pitman.



SOUTH-WEST VIEW OF ALL HALLOWS CHURCH.
From an old Water-colour Drawing.

In digging a sewer in Lombard Street in the latter part of the eighteenth century, the remains of a Roman road were discovered, with numbers of coins and several antique curiosities, some of great elegance. The beds through which the workmen sunk were four. The first consisted of factitious earth, about 13 feet 6 inches thick, all accumulated sinc desertion of the ancient street; the second of brick, 2 thick, the ruins of buildings; the third of ashes, 3 inches; the fourth of Roman pavement, both common tesselated, over which the coins and other antiquities discovered. Beneath was the original soil. The pred nant articles were earthenware, and several were orname in the most elegant manner.

When every house of business was known by its sig can easily be imagined how picturesque must have been appearance of so many signs in a street full of bus houses. In the Guildhall Museum some of these signs still be seen, and the book by Mr. F. G. Hilton Price des ing the signs of Lombard Street, with pictures of then a work which must have a special interest for all pe interested in antiquarian matters.

The church of All Hallows, which is the old Englis All Saints, is now the church of the united parishes o Hallows, Lombard Street; St. Benet, Gracechurch St St. Leonard, Eastcheap; and St. Dionis Backchurch.

All Hallows forms one of the thirteen Peculiars of Archbishop of Canterbury in London. The first recor the church dates back to 1053, when, according to "Monasticon Anglicanum," Britmer, or Brihtmeru citizen of London, gave to the Archbishop his messuag Grassechurch, and by the license of Stigand, the Archbis and Godric, the Dean, he gave to them the church of Hallows, Grassechurch, as described by Stow. The li has remained in the gift of the Archbishop ever since. original church lasted till the end of the fifteenth cent when it was rebuilt. This building lasted till the G Fire of 1666, in which conflagration it suffered severely. parishioners tried their hardest to patch up the walls straw and lime to conceal the effects of the fire, but a no purpose, and the church was rebuilt by Sir Christo Wren at a cost of £8,058, the work being completed in 1 This was the last work in the city of London in which W took part. The church was restored and redecorated in by Messrs. Francis (architects), when ten new stained- windows were put in by Gibbs.

The church is completely hidden from view, an approached through a narrow alley from either Lom Street or Gracechurch Street. It is entirely surrou by buildings, which makes the church somewhat dark. ternally the architecture is, perhaps, somewhat poor, th not without special features. As we look at the tower w an example of a simple square tower making a contrast i severe form and pallid purity of tone with its dusky ne bour the tower of St. Edmund, King and Martyr. worthy of more particular notice are, first, the beauty of mouldings over the upper windows, forming a minor cor to the main one above, and, secondly, the pierced par in which Wren so seldom indulged, but here so appropria introduced. The tower is 85 feet high, and contains a of bells brought from St. Dionis Backchurch in 1879.

In the porch of the south-west entrance is placed the gate through which one formerly entered from Lom Street. The piers and lintels of this gate are curio sculptured with death's heads, cross bones, hour-glasses, other emblems of mortality. It was erected just after Great Fire, and was removed to the porch where it stands in 1865. By many it is thought to be a typ what is known as a "Resurrection" gate, for which London churches are noted.

Inside we view a building oblong, without aisles length 84 feet, in breadth 52 feet, and in height a 30 feet. For such a large, plain church it must be admi that Wren showed his skill in securing both an appear of grandeur and a peculiar gracefulness the more ex ordinary in the absence of detached pillars. The ceilin flat and of plaster, with coved sides all round and a sha recess at the east end containing the altar. In the ce of the ceiling a skylight in a quadrangle of fretwork inserted in 1880 to obviate the darkness resulting from coloured windows. On the north and south sides of church are lofty windows with groined coves. The c glory of the church is, perhaps, the extremely beautiful richly carved woodwork, the churchwardens' and Corpora pews, and the doorways, pulpit, and organ case being esp ally noticeable. It is abundant in quantity and excel in quality. Round the church is a wainscoting of oak 9 in height. No period in modern English architectur more justly noted for foliated carving than that belongin the school of Sir Christopher Wren, at the head of which st Grinling Gibbons. For skill in workmanship, dexterit manipulation and close imitation of nature, this pe stands, perhaps, higher than any previous or later

e altar-piece, one of the most imposing of City altar-
ces, was erected at a cost of £186. The whole composition
overed with most beautiful carvings of wreaths, foliated
k, cartouches and shields. The upper part is a circular
el with the "Agnus Dei" finely painted and adorned
h an enrichment of carving, flowers, fruit, &c. ; above all
a large triangular pediment and seven candlesticks
resenting the seven Churches of Asia. Below the "Agnus
" and in the middle between the arching parts of the
nes of the two pictures is a pelican—the emblem of piety—
ling her young with her own blood, thus typifying our
iour. The two pictures are entitled "Ecce Homo" and
hrist Bearing His Cross," and take the place of the two
les of the Law, now removed to the north side of the
ss. The entablature of the four columns of the reredos
eautifully cut, and the fine pediments are of the Corin-
n order. The communion table is veneered; under-
th is the Holy Lamb on a chalice, and at each of the four
of the table a dove.

The pulpit is finely carved and veneered, as is also the
ar and sound-board, which are of the Ionic order adorned
palm branches, flowers, leaves, fruit, vases, &c.

The organ case is richly gilded and carved. It was
ted by Renatus Harris in 1675, and remained unaltered
n to 1868, being rebuilt in 1870.

The font, of marble beautifully sculptured and sur-
nted with an equally beautiful carved oak cover, is but
more feature of the exquisite work this church contains.

he two doorways are now erected at the west end of the
rch, on the north and south sides respectively, with the
churchwardens' pews and the entrance to the centre
e between. Both doorways are of the Corinthian order,
fluted pilasters and well-carved capitals, frieze and
ice. Over each is a large circular pediment containing,
he one case, the image of Death, and in the other the
ge of Time. Underneath are other small pilasters and
arching pediment, the space between which and the
ice under it is replenished with a piece of curious carv-
the view of part whereof is intercepted by an artificial
ain in wood, likewise carved, but so natural that many
attempted, in the days when it was painted green, to
it to one side and see what was behind.

n the Corporation pew are two sword rests. At one
the Corporation swords and mace which rested in
Dionis Backchurch were, on the destruction of St. Dionis,
ved here.

here are no monuments of very great interest. Perhaps
most remarkable is one of Dr. Edward Tyson (1708),
ved from St. Dionis. He was a Fellow of the Royal
ety and was caricatured under the name of Carus in a
by Garth entitled "The Dispensary."

n the north-eastern wall of the nave is a tablet remind-
us that John Wesley preached his first extempore sermon
his church.

hat the church has escaped destruction is a matter for
ratulation, especially as it was one of those scheduled
he Commissioners appointed under the Union of Bene-
Act to be sold.

he church is especially rich in the plate it possesses,
ng been enriched by that of St. Benet and St. Leonard.
as flagons of 1605 and 1613, cups of 1612, 1617, 1624,
1663, patens of 1560, 1597, 1604, and 1660, and alms-
es of 1685, 1706, 1709, 1765, and 1771. The plate of
Dionis was handed over to the church of St. Dionis,
am.

he internal arrangements are much altered from what
were in the time of Sir Christopher Wren, but the fine
ng—such superb specimens of seventeenth century work
s fortunately been retained.

he registers and records of the church are of great
est, and in the church, in a glass case, are to be seen a
e of the reign of James II., and a portion of one of the
s of Erasmus.

NCHESTER SOCIETY OF ARCHITECTS

E sessional papers meeting on the 8th inst. was held
on somewhat novel and distinctly interesting lines.
J. J. Burnet, F.R.I.B.A., who was the visitor for the
ng, instead of reading a formal paper, led what was
unced as an informal discussion, mainly upon points
ng from an exhibition of drawings of his own work
h had been on view for a few days. In opening the dis-
on Mr. Burnet said that they were there that evening
spirit of *camaraderie*. He would say that his works
shown represented genuine pleasure in solving problems
d before him by his clients. It had been his privilege
to work for clients—themselves highly trained technically, shipbuilders and mechanics—who clearly enunciated the problems set before him. He also spoke of the pleasure which he had always found in travelling in pursuit of knowledge to equip him for his work.

In the course of the conversation which followed, Mr. Burnet outlined the inception of the scheme of extension of the British Museum. The splendid drawings of the work provided fruitful ground for discussion, and the way in which the minutest details had been thought out was in many ways a revelation.

Besides the drawings of the Museum, photographs and details of many other works of Mr. Burnet were exhibited.

ILLUMINATING ENGINEERING SOCIETY.

AT a meeting of the above Society, held at the Royal Society of Arts' premises, John Street, Adelphi, W.C., Mr. Leon Gaster, hon. secretary, presented "A Summary of Progress during the Vacation," of which the following is an abstract:—

Committees on School and Library Lighting.—After the discussions on school and library lighting last session it was decided to form two Sectional Committees dealing with these two subjects. During the vacation a number of gentlemen have been approached to act in this capacity, and the practical co-operation of the Library Association, the Association of Medical Officers in Schools, the Association of Technical Institutions, the Association of Teachers in Technical Institutions, and the London Teachers' Association has been secured. Representatives have been nominated by these Associations, and it is hoped that these Committees will act as a permanent centre of information, and that they will presently have a record of valuable work to bring before the Society.

The constitution of these Committees is as follows:—

Committee on School Lighting.—Prof. W. C. Clinton, Mr. J. Darch, Dr. W. Ettles, Mr. F. W. Goodenough, Dr. J. Kerr, Mr. W. R. Rawlings, Mr. T. E. Ritchie, Mr. A. Stokes, Mr. S. E. Thornton, Mr. R. J. Wallis Jones, representing the Illuminating Engineering Society; Dr. R. S. Clay, representing the Association of Technical Institutions; Mr. P. Abbott, representing the Association of Teachers in Technical Institutions; Mr. E. S. Mortimer, representing the London Teachers' Association; Dr. E. H. Nash, representing the Medical Officers of Schools Association.

Committee on Library Lighting.—Dr. W. M. Bayliss, Mr. J. G. Clark, Mr. J. Eck, Mr. S. Hamp, Mr. Haydn T. Harrison, Mr. Chas. W. Hastings, Dr. H. R. B. Hickman, Mr. B. H. Jenkinson, Mr. V. H. Mackinney, Mr. N. W. Prangnell, Mr. A. P. Trotter, representing the Illuminating Engineering Society; Mr. H. Bond, Mr. J. Duff Brown, Mr. H. Jones, Mr. R. A. Peddie, representing the Library Association.

Ex-officio on both Committees.—The President, Hon. Secretary, and Assistant Secretary of the Illuminating Engineering Society.

The Standard Street Lighting Specification.—The Joint Committee, on which representatives of the Institutions of Gas and Electrical Engineers, the Association of County and Municipal Engineers, and the Illuminating Engineering Society have been nominated, are continuing their meetings, and a considerable amount of data has already been collected.

Congress of the Royal Sanitary Institute at Belfast.—At the invitation of the Royal Sanitary Institute, the Illuminating Engineering Society nominated the President, the Hon. Secretary, Mr. J. Eck, and Mr. J. Darch to be present as delegates. A paper was presented by Mr. Darch on the subject of "Hospital Lighting." A paper read by Mr. W. H. Webb on this occasion contained some notes on "School Lighting." Special reference was made of the suggestions on the subject made at the meetings of this Society during the past session, and they were recommended to school officers for special consideration.

The International Hygienic Congress at Dresden.—At the suggestion of the Society some exhibits dealing with illumination were dispatched to this exhibition, including photographs taken by artificial light showing the condition of illumination in various gas-lighted schools, by the Gas Light & Coke Co., in various factories lighted by high-pressure gas by Messrs. Keith & Blackman, and of interiors illuminated by inverted electric arc lamps by the Union Electric Co., Ltd.

A Government Committee on the Hygienic Aspects of Lighting.—An important step has been taken by the French

Government in appointing a Committee to inquire into the hygienic aspects of lighting. This Committee includes within its reference the framing of standards of illumination for industrial purposes and of simple rules on illumination, the nature and causes of defects of vision and their relation to lighting conditions, the measurement of illumination, &c.

The attention of the authorities in this country has been drawn to this Committee. It is hoped that the precedent established by France will shortly be followed in other countries. The evidence before the recent Departmental Committee Commission on Accidents in Factories and Workshops in this country strongly emphasised the need for more definite recommendations on lighting as a means of avoiding accidents and for the safeguarding of dangerous machinery. It was suggested that meanwhile inspectors should be given general statutory power to require adequate illumination. It is understood that the Home Office is now giving this matter very careful attention, and has arranged for tests to be made and evidence collected bearing on this point.

The International Electro-technical Commission.—At the invitation of this Commission, the Hon. Secretary was present at the meeting in Turin, and a resolution was passed unanimously "that the National Committees should co-operate with the illuminating engineering societies in their respective countries in studying the question of symbols, nomenclature, and other matters relating to illumination."

The International Electrical Congress in Turin.—At the International Congress of Applied Electricity in Turin, the Society was again represented by its President and Hon. Secretary. The latter read a paper dealing with "The International Outlook in Scientific Illumination," urging that some attempt was needed to co-ordinate the efforts of the various national and international committees which dealt with illumination, so that there might be some common plan of action. In accordance with this suggestion the following resolution was proposed and carried unanimously at the plenary general meeting on September 16:—"That this Congress deems it desirable that an International Commission should be appointed in order to study all systems of lighting and technical problems in connection therewith; and, having been informed that the Illuminating Engineering Society of London has the intention of forming such a Commission, and of putting itself in touch with the other existing national and international committees, approves their taking the initiative in this respect."

The Illuminating Engineering Society is in an exceptionally fortunate position for carrying out this work, since it already includes among its members delegates on all the various national and international committees interested in illumination. During the vacation a number of distinguished representatives of the International Electro-technical Commission and the International Photometric Commission gave their support by becoming corresponding members.

Courses of Lectures in Illuminating Engineering.—The L.C.C. Educational Department was approached some time ago on the subject of arranging courses of lectures on illumination, and this year it was decided that the time was ripe to sanction the organisation of trial courses at several institutions in different parts of London. Such courses have already been organised at three centres, the Regent Street and Battersea Polytechnics and the Northampton Institute. These lectures are intended as a preliminary to more complete courses in the future. But a new precedent has been set in the organisation of a course in which the various sections of the subjects, gas and electric lighting, photometry, &c., are dealt with by lecturers who have made a special study of their respective departments.

The Society may congratulate itself on having substantially increased its membership and influence during the vacation. An interesting series of papers has been arranged. It is hoped that members will continue to give their active support in making the aims of the Society known, so that it may reap the benefit of this preparatory work during the coming session.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

THE annual general meeting and smoking concert of the above Society was held at the Queen's Hotel, Leeds, on Thursday evening, November 16. The President (Mr. Sidney D. Kitson, M.A., F.R.I.B.A.) occupied the chair, supported by the Lord Mayor (Mr. Wm. Nicholson). The proceedings opened with the President's address to members and associates of the Society, followed by the distribution of prizes to the students.

The President's Address.

Gentlemen,—I don't know to whom the greatest con lence is due—to the President in his second year of office to the audience which has to listen to his second openi address. In his first year the ideas which he has been form lating for a lifetime come tripping from his pen. He eage seizes the first opportunity which has been vouchsafed to h of putting forth his views and of boring his fellow-archite with his own theories of the past, present, and future architecture, of the building trades, and of every sub remotely, or not at all, connected therewith. He spe weeks in looking up quotations and in fervently study past presidential addresses in the hope of culling therefr some choice phrase or subtle suggestion.

But a second presidential address is a very differe matter—the message has all been given before, the well is d fresh inspiration refuses to appear. You must bear wi me, therefore, to-night in the few commonplace remar with which I propose to address you.

And firstly—as good Yorkshiremen—a few words abo ourselves. The Society has lost this summer the services its Secretary, Ralph Thorp, who has gone to Canada. Sh as the time was in which he served as Secretary, he won t good opinion of all our members by his courtesy and e ciency, and our good wishes follow him. Mr. Whitehea who has done such good work for the Sketching Club, h kindly consented to take his place. I believe he will n fall below the high standard of achievement set by his p decessors in the office.

The year that has just passed has not been an importa one in the history of our Society; but happy is the socie which has no history, and the object of this Society is not make history but to go quietly on its way as a permane and unpretentious guardian of the interests of architectu and architects in this province. It is its business to hold watching brief and not to take action unless its good offi are required or its intervention is tolerably certain of succe Nothing is so harmful to a society such as ours as und haste in action or the tendering of unasked-for advice, whi is likely not to be accepted. I therefore submit to you th it is in no sense detrimental to the Society that its name h not been in evidence in the newspapers, and I assure y that it has done a considerable amount of quiet, unseen, b none the less useful work during the past session.

There are points, however, of a more public nature whi our Council might well take in hand in the near future, suc for instance, as a firm protest against the increase of offici architecture, which is becoming a menace to practising arch tects and which is costing the ratepayers and taxpayers, was so ably pointed out by Mr. Leonard Stokes in his pre dential address at the R.I.B.A. the other night, considerab more than if the work were put out in the fairer and mo reasonable way to ratepaying and taxpaying architects. T public ought to be made to realise that they are paying mo for what we may be pardonably permitted to term a wor article.

Another point which has been discussed by our Coun more than once is the growing evil of builders who make the own plans with one hand and hold out their caps with t other to architects to give them work. It is a cardinal fa of elemental justice that a man cannot eat his cake a have it, and if a firm and united attitude were to be adopt by members of this Society it is reasonable to suppose th those misguided builders could be made by practical mea effectively to see the errors of their ways. And this brin me to the time-worn subject of registration, a subject whi requires no arguments in its favour here. I own that my early days I was opposed to registration, but experien has taught me to be a thoroughgoing advocate of that polic It is unnecessary at this time of day, when every trade a profession has formed itself into a trades union, to point o the advantages which would accrue to our profession by closer union and a sterner discipline. It ought to be impo sible for an employer to bargain for a less remuneration tha the modest minimum prescribed by the Institute, or for a architect to agree to such an arrangement. It ought to impossible that architectural work should be done—and i done at that—by builders, plumbers, rent collectors, a undertakers.

The Institute is moving slowly but surely towards th achievement. The policy was ably advocated more years a than, probably, he cares to remember by one of our ex-Pres dents, Mr. J. W. Connon; and it has been endorsed, I thin by everyone else who has occupied this chair. Nearly 2,0 Licentiates have already been enrolled in the ranks of th Institute. Thus a most useful element of solidarity has be ined in furtherance of the policy of registration. No lication for the licentiateship will be entertained after June, and therefore all members of this Society who are ble and still remain outside the Institute are urged to l themselves of the opportunity. The Council of the itute have pledged themselves to elect as Licentiates all are recommended by the Council of their local Society out further formality. I should be grateful, therefore, y who are still hesitating in the matter would come and a talk with me about it. The amalgamation of the ety of Architects with the Institute seems likely to be nplished in the near future. This statesmanlike ngement has meant self-sacrifice and the exercise of much and common-sense on both sides. The fact that such ities have been so fully shown in these negotiations is a antee for the successful termination of the campaign for tatutory recognition of architects.

ll this is, perhaps, rather dull, but I am convinced it is e utmost importance to the profession. The reason why e past men have held aloof from the movement is that felt that it would mean the embracing of all—good, bad, indifferent—who professed architecture. It has come ly to be realised that statutory recognition is necessary use, among other things, of the increasing and intoler- burdens which recent legal decisions, with almost impish uity, continue to pile up upon the poorest architect. It alised that it means the inclusion, for the time being, of who, under the more stringent tests of the future, would ind a place. But it will be the part of architectural tion, which has made such rapid strides in late years, ise the standard and to weed out the unfit. And so in though we may not live to see it, architecture will take lace beside medicine as a well organised and disciplined ssion, doing a work hardly less important than that edicine for the benefit of the community.

he most important thing of all in connection with the ssion is the provision of education. Twenty years ago tectural education outside the usual office routine of age hardly existed. Much progress has been made since and the proposed establishment of a British School t and Architecture at Rome is another step in advance. erto the winners of studentships have wandered, sketch- in hand, over Europe, filling up their time, doubtless pleasantly, but with little or no discretion or continuity eir efforts. Whether Rome at the present day is the place for the study of living architecture is, I think, to doubt. But if we cannot all go to Rome it is open l students in this province to attend the architectural l at the Leeds School of Art, where, under the direc- of Mr. Coombs, a very thorough and sympathetic teach- s to be obtained.

he work sent in by our students is always an interesting nstration of the standard of architectural education at ime. One learns what they are thinking about, what heir preferences, and what is their present idea of tectural design and achievement.

his year the work is of a high quality, but there is not gh of it. Consequently the competition has been poor, ugh the work submitted has in nearly every case ed a sufficiently high level as to demand, and to obtain, ze.

he silver medal for measured work goes to Mr. Krucken- for a very carefully and artistically rendered study of erholme church—a building which seems to enshrine n itself the traditional characteristics of Upper rfedale. The author has lovingly noted on his drawings e charm of texture and of almost accidental design goes so far to make up the attractiveness of the sub- But I should like to see next year some sets sent in is competition of more modern buildings, such as the Town Hall, the Mansion House at Roundhay, or the Exchange—to take at random a few local instances. e can be no doubt but that the study of good modern is far more helpful than the measuring of ordinary eval work, so much of which depends for its appeal upon icturesqueness or other entirely fortuitous quality.

he competition in the design class has been very keen, the results have justified all the trouble which our Secretary has taken with the organisation of the four cts for design. Three men have each severally occupied rst, second, and third place; and so prizes of the full of the first prizes are awarded to each of them. And nk the members of the Society will endorse the verdict e Council and agree that all three deserve the honour.

he subject of the prize for construction was a difficult and elicited two very elaborate designs for a staircase and dome in reinforced concrete. The prize goes to Mr. Voekel for a carefully constructed and well worked out set of drawings.

Mr. Chadwick's measured sketches form a very fine record of work, ably rendered, and the series of details from the interior of Kirkstall Grange are particularly good.

There was only one competitor for the essay prize, which is disappointing. The subject was "Yorkshire Building-Stones and Their Influence upon Design." It was hoped that, after Mr. Henderson's interesting lecture on the houses of the Dales, several students would be induced to compete. The work of Mr. Palmer, who is the author of the only essay sent in, has been adjudged to be of sufficient merit to obtain the prize. It is a painstaking effort which is, perhaps, too strictly geological. There are, too, considerable evidences of scissors and paste; nor has he illustrated his remarks sufficiently with marginal sketches. But further criticisms must be reserved until the students' evening, in March, when he will have the honourable ordeal of reading it to his fellow-students, and of listening to their criticisms.

The Sketching Club has had a good year favoured by fine weather and an equally fine Hon. Secretary, and the attendances at the meetings and the enthusiasm shown are most encouraging. It is to be hoped that this club will continue to flourish, for it promotes good comradeship and healthy emulation.

A review of the state of employment among our members during the past year is not an inspiriting one, and we have to record the departure from the province of some of our number. Several firms of contractors, with honourable records behind them, have ceased business. The feeling of confidence that was in the air up to a few years ago seems to have died away; people are marking time and hesitating to invest money in building enterprise. Nor are the census returns of the current year for Leeds of an inspiring nature. It is not good news to hear that the population of the city is increasing now at a less rate than it was this time a hundred years ago. There were then probably not five architects practising in Leeds, while now there must be ten times as many. There is, however, no reason why a manufacturing town should grow indefinitely, and there are many reasons why it should not. And, after all, a city which contains nearly half a million of inhabitants is a respectable unit. Athens, at the height of her artistic achievements; Florence, in the Renaissance, never contained so many inhabitants, and it is doubtful if the London of Sir Christopher Wren counted many more.

(To be concluded.)

LECTURES ON ILLUMINATING ENGINEERING.

THE second lecture of the course was delivered by Professor J. T. Morris on November 7, at the Polytechnic Institute, Regent Street, W.

Professor Morris said that the present lecture, which was the last of those allotted to electric lighting, would deal with the subject of arc lamps and their probable improvement, but he would first like to refer to a matter which he had omitted to mention on the occasion of his first lecture, when he had devoted himself to the consideration of glow lamps. This was the question as to whether the constant switching on and off, to which the average lamp was subjected, was at all deleterious to metal filaments, and although he must say that the life of a lamp was affected to some extent, it was a very small consideration indeed—a matter of about one-half per cent. only at the most. He might also mention that the British Thomson-Houston Company were now manufacturing drawn wire tungsten lamps, a fact which he did not acknowledge when dealing with this subject.

Arc lamps differed fundamentally from glow or incandescent lamps in that the illuminant was produced by an arc struck between carbon electrodes, and these carbons were disintegrated or consumed during use. Experiments had been made to eliminate this process of disintegration, which was not necessary in producing the arc. There were possibilities in the idea of a pair of carbons which would transfer the disintegrated matter from one pole to the other, the lamps being re-carboned by reversing the old ones.

An increase in the life of carbons had been effected by excluding the air from the surrounding globe as in the small "Foster" lamp, which was very useful for interior use, the light being suitable for judging colours.

Other types of enclosed arc lamps had been evolved in which the carbons were impregnated with salts, such as salts of calcium, and this was found to produce a light of a very distinct colour, being rich in red rays. By this means, too, the length of the arc could be greatly increased without snapping, whilst the consumption of current was less in relation to the light given. A difficulty with these lamps, which were known as "flame" arcs, was the white deposit which collected on the enclosing globe, especially in those with a smaller inner globe. This deposit, if allowed to accumulate, would obscure the light until but 30 per cent. was being obtained. The difficulty was minimised if the enclosure was not too small, and some later types had been devised, such as the "Jandus" lamp, where the gases from the carbons were withdrawn through tubes encircling the outer globe, the deposit being collected on the inside of these tubes instead of on the glass enclosure. Easy access was provided to the interior for cleaning purposes. Another improvement was to be recorded in the introduction of magazine arcs, of which there were now several makes, such as the "Excello" lamp, manufactured by the Union Electric Company. By means of a supply of carbons stored in the hood of the lamp, a fresh pair were automatically projected into place directly those in use were consumed, much on the same principle as that used in a magazine rifle. These lamps were now largely used, and could be burnt for long periods without re-charging, eighty burning hours being the time reached by a "Johnson Phillips" lamp, the makers of which had also shortened the period during which the arc was extinguished, whilst the carbons were being changed. This had now been reduced to a few seconds by arranging that the new pair of carbons should be in place before the stumps of the old ones were dropped. Some manufacturers aimed at producing a steady light, and there was room for improvement in this respect with flame arc lamps, although such faults had been minimised of late. The Abbey Electric Company and the Westminster Engineering Company were working in this direction, and the former were also making a lamp to dispose of the deposits from prepared carbons as mentioned in the case of the "Jandus" lamp.

During the consideration of the subject of arc lamps the images of the arcs produced by various types of carbon were projected on to a screen, making it possible to accurately compare them. The composition of their light was also demonstrated by interposing a prism into the rays, by which means the spectra of the light produced by the different carbons were also shown on a second screen.

Passing to the question of vapour lamps, these were shown to consist of tubes, often of considerable length, containing gases which, when excited by an electric current, became actively luminous. Arrangements had been provided whereby the tubes were compensated automatically for the gas absorbed.

These lamps were objected to by some people on account of the somewhat unpleasant colour of the light, but it had been found possible to overcome such objections to a large extent by fitting red reflectors above the tubes, the rays missing from the original light being thus introduced. This fact was demonstrated with a Cooper-Hewitt mercury vapour lamp, with the result claimed. The tubes of some of these lamps became so hot that it had been found necessary to make them of some other material than glass, which became softened by the extreme temperature, and quartz tubes had accordingly been successfully introduced.

In conclusion Professor Morris thanked those firms who had lent the lamps and apparatus by which he had been able to make the lecture a practical one, and he also paid a warm tribute to the governing body of the Polytechnic, who had given him the most cordial help in providing the necessary facilities for fitting up the apparatus.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Land Tax Valuation.

Sir,—The decisions of the Court of Appeal in the actions "Burghes *v.* the Attorney-General," brought under the auspices of the Land Union, and also "Dyson *v.* the Attorney-General," confirm the judgments of Mr. Justice Warrington and Mr. Justice Horridge that the inquisitorial deman known as Form 8 and Form 4 are "unauthorised." T issue of these forms is typical of the attitude adopted by t Commissioners of Inland Revenue, and it is to be hoped th these decisions of the High Court and the forcible commen of his Majesty's judges will check the growing tendency Government Departments to exceed their powers and co strue Acts of Parliament to suit their own purposes. Th illegitimate methods have for their first and easiest victi those who, from lack of means or information, are slow exercise the right they have possessed for centuries of appe ing to the Courts of Justice against the arbitrary action the Executive.

But these decisions have settled only two out of ma points upon the provisions of the Finance Act where the terpretation placed on them by the Commissioners is op to grave doubt. The Land Union, acting upon the advice counsel, has prepared a detailed statement of some furth important questions which have already arisen, and I wi to take this opportunity of notifying these to proper owners and to their professional advisers, and to strong urge them to make a formal objection to every provisio valuation where any of these questions arise until it h been settled by the referees or by the Courts.

The following short summary is sufficient to indicate t nature of the points at issue. The detailed and speci statement can be obtained by applying to the Secreta Land Union, Westminster.—I am, Sir, yours obediently,

E. G. Pretyman.

The Land Union,
St. Stephen's House, Westminster, London, S.W.
November 17, 1911.

Summary.

1. Whether the Commissioners are right in refusing, spite of the express words of the Statute, to make any allo ance for the value attributable to land appropriated roads?

2. What is the proper method of deducting the value tithe? The Commissioners' views on this point differ wid from those of the owners.

3. What is the true interpretation of the phrase "val attributable to buildings"? The Commissioners write large sums for depreciation.

4. Whether, in the case of agricultural land, deductic are allowable for expenditure on drains and fences? T Commissioners refuse to allow them.

5. What is the method of arriving at the agricultu value of undeveloped land? The Commissioners are und valuing in most cases.

6. When does duty become payable on undeveloped la which is let? The Commissioners are claiming and receivi duty in many cases where it is not legally due.

7. Whether the Commissioners are right in claimi mineral rights duty on arrears of rent accrued before, b received after, the passing of the Act?

8. Whether "surface rights" are liable to mine rights duty? The Commissioners have claimed that th are, and have appealed against the decision of the Refe that they are not liable.

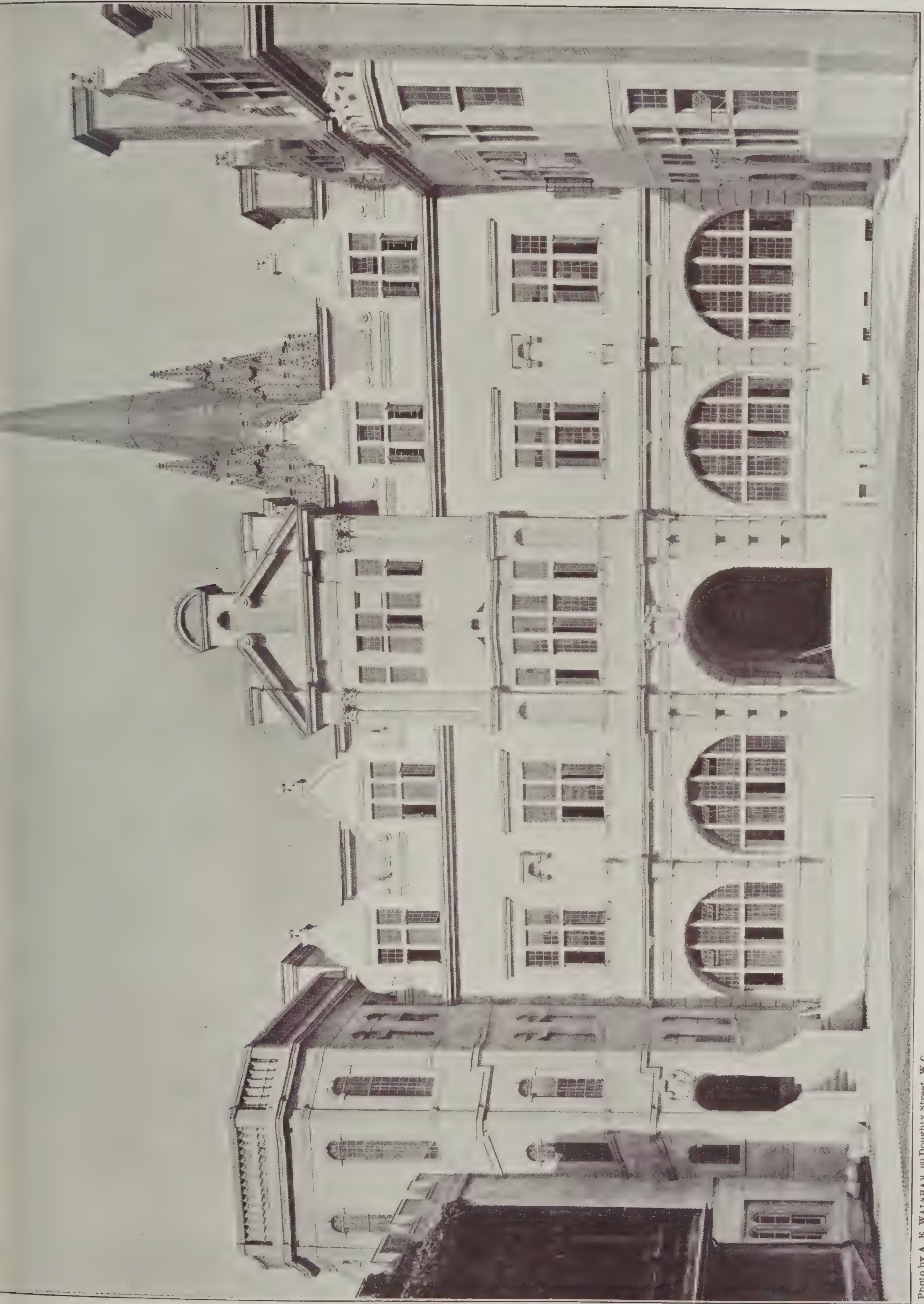
9. Whether the Commissioners' contention that increme duty is leviable upon value attributable to a builder's gene scheme of development is correct, having regard to the Cha cellor of the Exchequer's statement that value due to "ski brains, and expenditure" should not be taxed?

10. Whether the contention of the Commissioners th when a property is sold above its market value such exc should always be taxed as increased site value is correct?

11. Whether the Commissioners are right in asserti that substituted site value cannot be claimed where grou rents have been purchased or leases granted?

12. Whether, as contended by the Commissioners, t fact that an owner has not stated the value of his miner on Form 4 debars him from placing a value upon them su sequently? The fact that Form 4 is now held to be una thorised will materially affect this question.

The Royal Academy of Arts will hold in January next election to the professorship of chemistry vacant by t resignation of Sir Arthur H. Church, K.C.V.O., F.R. The professorship is tenable for four years, the holder bei eligible for re-election. The duties of the professor are deliver six lectures annually, of which one should be on t chemistry of stones, and to give advice to members a students of the Royal Academy on chemical questions rel ing to art. The fee is £100.



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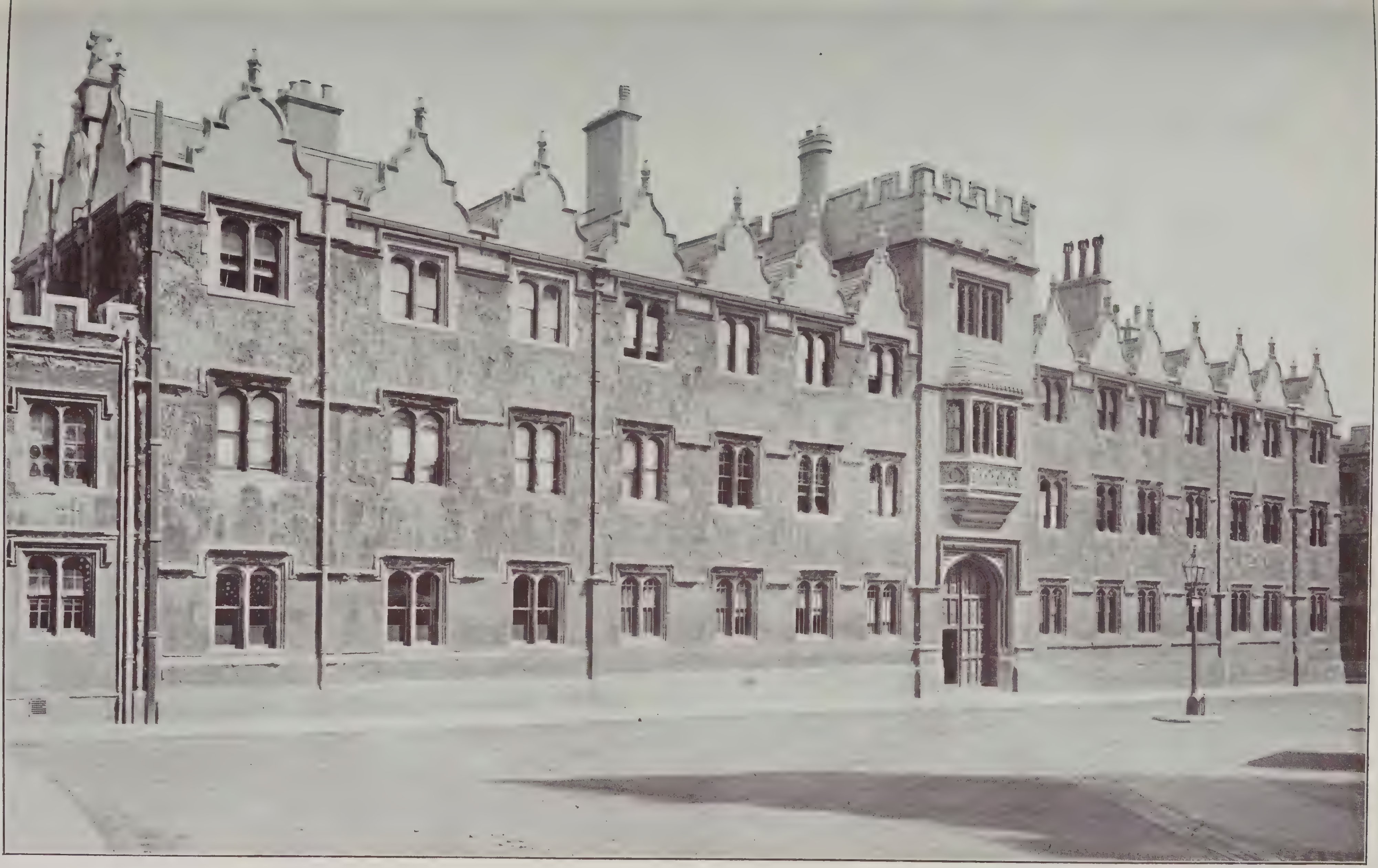

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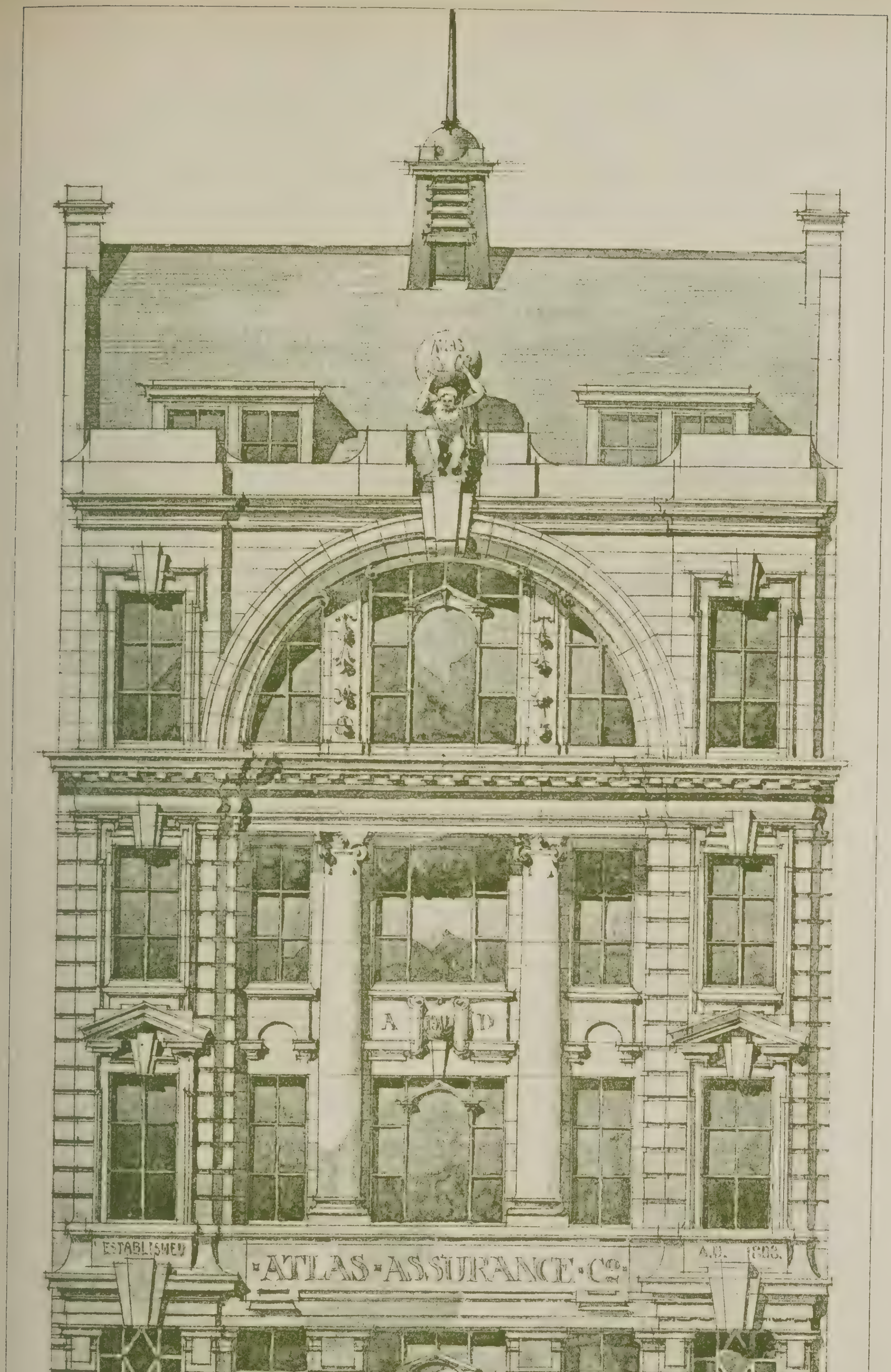

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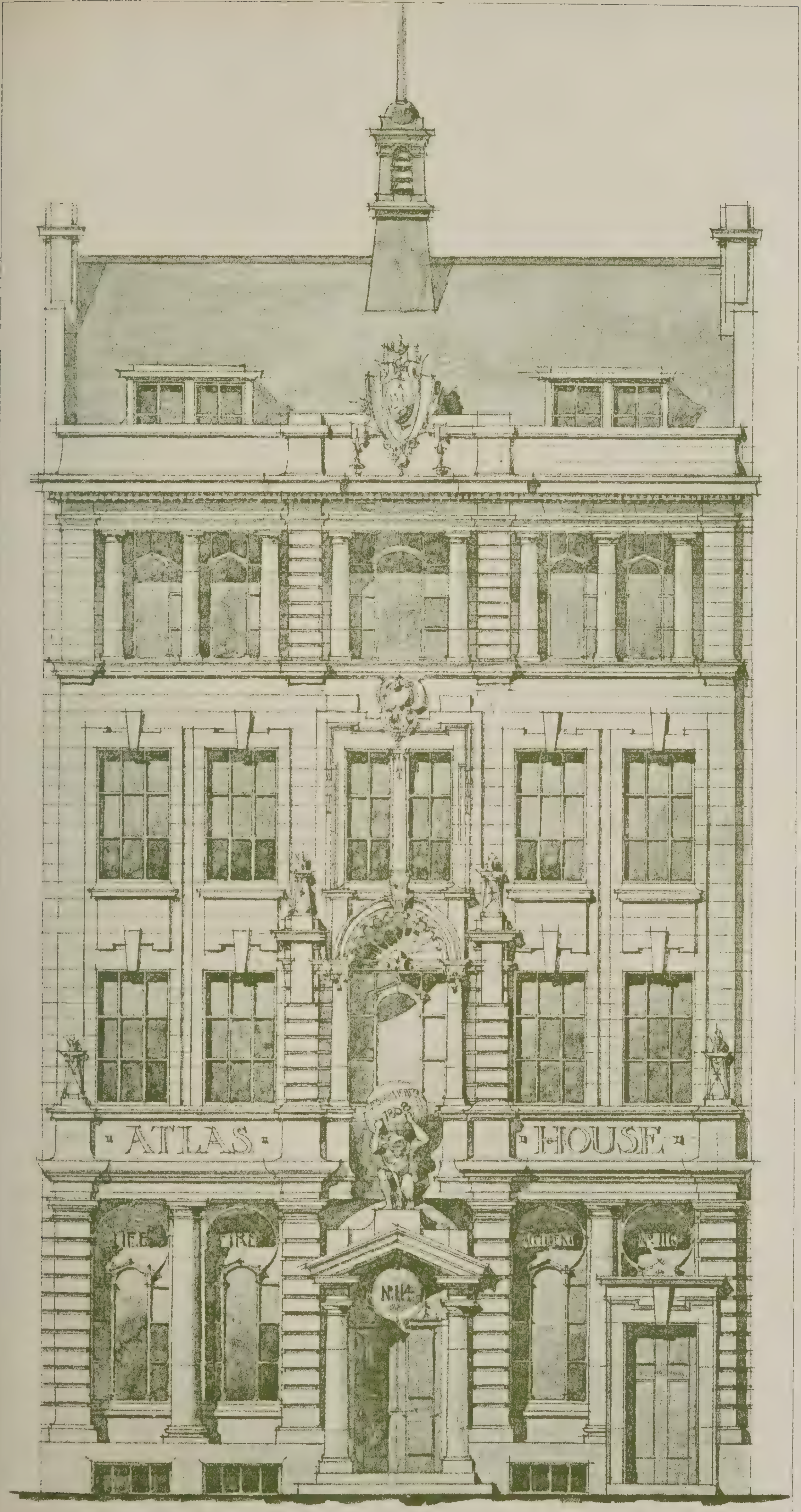

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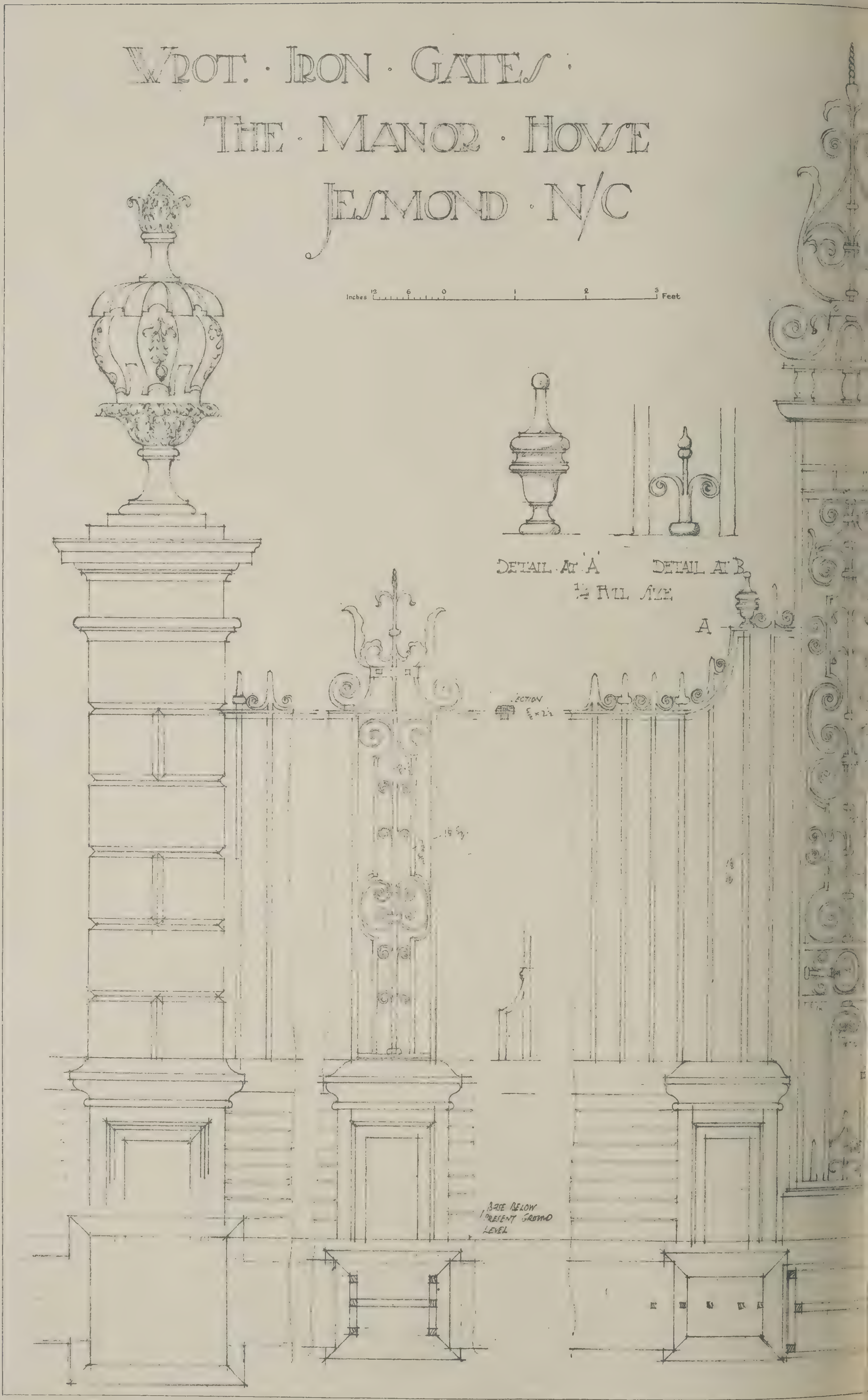

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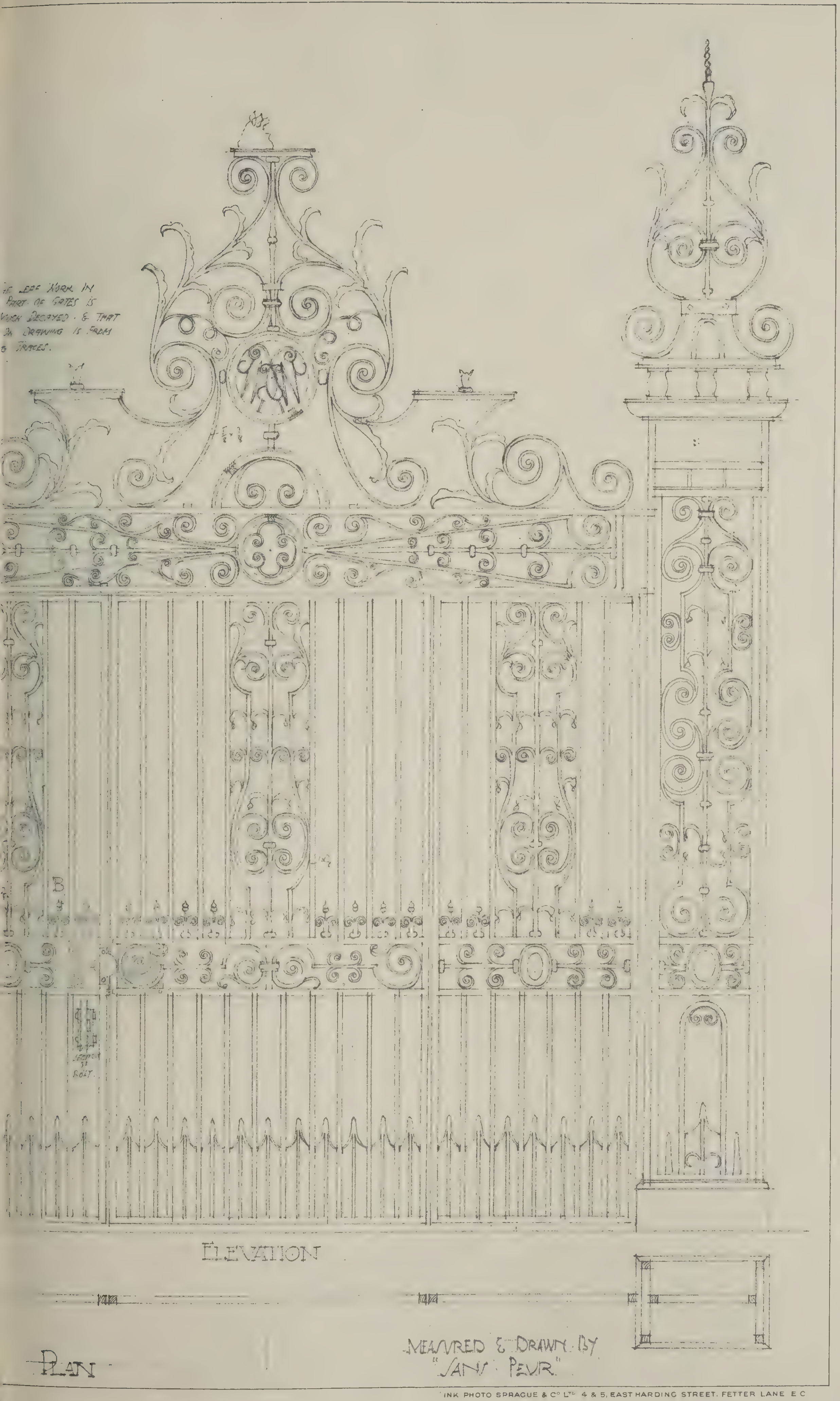

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MEASURING CLUB.

The Architect.

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FORTHCOMING EVENTS.

Monday, December 4.

Royal Institute of British Architects : Business meeting at 8 P.M.

Liverpool Architectural Society : Paper on "Architecture as an Expression of Faith," by Mr. George Hubbard, F.S.A., F.R.I.B.A., at 6 P.M.

Society of Engineers : Paper on "The Design of Tall Chimneys," by Mr. Henry Adams, M.Inst.C.E., at 7.30 P.M.

Tuesday, December 5.

Nottingham Architectural Society : Exhibition and Criticism of Designs for "An Approach to a Public Park."

Wednesday, December 6.

Manchester Society of Architects : Paper on "Science and Proportion," by Mr. Paul Ogden, F.R.I.B.A., at 6.30 P.M.

Northern Architectural Association : Students' Meeting at 7.30 P.M.

King's College, London : Paper on "The Early Roman Churches," by Professor Elsey Smith, at 5 P.M.

Friday, December 8.

Aberdeen Architectural Association : Paper entitled "A Historical Tour in Aberdeen," by Mr. G. M. Fraser, at 7.30 P.M.

Glasgow Technical College Architectural Craftsmen's Society : Paper on "The Duties of a Foreman Mason," by Mr. J. Crawford, at 7.45 P.M.

REINFORCED CONCRETE IN LONDON.

AT the present moment there is no provision in the London Building Act for reinforced concrete buildngs, and such are therefore not permissible in the Metropolis except where, as in the case of the General Post Office, the buildings are exempt from the provisions f the London Building Act. But under the provisions of ection 23 of the London County Council (General Powers) ct, 1909, the London County Council have power to make regulations with respect to the construction of uildings wholly or partly of reinforced concrete, and with espect to the use and composition of reinforced concrete n such construction.

The Building Acts Committee of the Council has now repared draft regulations, and as by the Act empowering he Council to make regulations for reinforced concrete uildings, the Council is required to give to the Surveyors' nstitution, the Institution of Civil Engineers, the Royal nstitute of British Architects, and the Concrete Institute notice of its intention to apply to the Local overnment Board for allowance of any regulations made, nd with a view to the avoidance of material alterations in e regulations by the Local Government Board, the suggestions of these authorities on the draft regulations have een invited, and, in a large majority of instances, incorporated therein.

Thus we are not surprised to find a very close agreeent between the draft regulations of the Building Acts ommittee of the Council and the second report of the int Committee on Reinforced Concrete, consisting of presentatives of the Royal Institute of British Architects, e District Surveyors' Association, the Institute of uilders, the Municipal and County Engineers' Association, the War Office, the Admiralty, the London County uncil, and the Concrete Institute.

Reinforced concrete is defined by the draft regulations concrete reinforced by metal so combined that the metal ll (a) be sufficient to take up all the direct tensile esses; (b) assist in the resistance to shear; (c) assist the resistance to compression where necessary.

The value of the permission to use reinforced concrete s in the regulation that when the dead loads and superposed loads of the building are transmitted to the ndations by proper reinforced concrete construction, r external enclosing walls of reinforced concrete may of any thickness not less than 4 inches, provided t such enclosing walls are designed and reinforced to ist any loads and pressures they may have to carry. ternal walls of brickwork, stonework or plain concrete may be of a thickness of not less than 8½ inches for the topmost 20 feet of their height and 13 inches for the remainder. Hollow concrete blocks are also permissible for filling between the reinforced concrete skeleton structure, the total thickness being not less than 8½ inches nor the hollow space more than 3 inches.

A further concession is also made in the extent of the permissible openings in the external walls, which in a reinforced concrete building may be two-thirds of the whole area of any storey above the ground storey, provided that the aggregate width of the openings does not exceed three-quarters of the whole length of wall in each storey.

Buildings partly of reinforced concrete and partly of brickwork or steel-framed structure, except as regards party walls or filling-in walls, will not apparently be permitted, for it is provided that "Nothing in these regulations shall be deemed to authorise the construction of buildings of reinforced concrete in which the loads and stresses are not transmitted through each storey to the foundations by a skeleton framework of reinforced concrete or partly by a skeleton framework of reinforced concrete and partly by a party wall or party walls." This does not prevent the use of one of the most useful forms of reinforced concrete construction, cantilevered work, for it is elsewhere provided that "In cases where bracketed work is necessary and provided to carry loads, it shall be reinforced sufficiently to provide for the stresses due to such loads."

A very reasonable but sufficient schedule of the superimposed loads for floors is included and recognition of the homogeneity of reinforced concrete buildings is afforded by a permissible reduction on lower storeys of the calculated superimposed load for buildings not of the warehouse class. But as in the regulations for steel-framed structures the method of estimating the superimposed load for roofs is, in our opinion, an illogical one. A roof of 21 degrees slope will have its superimposed load estimated at 28 pounds per square foot of sloping surface normal to such sloping surface, but on a roof of 20 degrees slope the superimposed load is to be estimated at 56 pounds per square foot measured on a horizontal plane.

It would appear that the use of expanded metal or metal lattice, whether of wire or ribbon, is not permitted under the regulations as drafted, for in the case of beams it is provided that the least diameter or thickness of the longitudinal bars shall not be less than one-quarter of an inch, and wiring may be used solely for holding the bars during the process of placing the concrete in position. All other reinforcements in beams shall be at least one-eighth of an inch in diameter or thickness. With respect to slabs similar stipulations are made, with the difference that the "all other reinforcement" is to be at least one-tenth of an inch in diameter or thickness.

The length of pillars in reinforced concrete work will not exceed under the proposed regulations thirty diameters, for at this length the stress allowed is one-fifth only of that on a pillar whose length is eighteen times its effective diameter; the effective diameter being measured to the outside of the reinforcement. There is a slight variation in the regulations from the Joint Committee report in respect of the limit of stress on the metal reinforcement of pillars; the regulations restricting this to half the elastic limit of the metal and the report to half the yield point.

Coarse material or aggregate of reinforced concrete must not include coal residues, slag, sulphates, including plaster of Paris or limestones, and must pass a mesh three-quarters of an inch square and be retained on a mesh three-sixteenths of an inch square.

It is evident that the regulations have been drawn up with full recognition of the latest knowledge of the capabilities, the limitations, and the essentials of reinforced concrete construction, and we can see nothing in them to which serious objection can be taken from an architect's point of view.

NOTES AND COMMENTS.

We are glad to see that the Education Committee of the London County Council have recommended the Council to increase their grant to the School of Art Woodcarving from £400 to £450 per annum. The School is doing good work, and, as the L.C.C. Education Committee testify, is doing it economically, but its expenditure exceeds its normal income. As the School proposes to increase the number of places at the disposal of the Council from nine to twelve, there is sufficient justification for increasing the grant from the county funds.

At the Conference of the Smoke Abatement League of Great Britain, held at Manchester last week, Mr. W. B. Smith, of Glasgow, made a good suggestion for the diminution of the amount of smoke produced by domestic fires, which are now the chief producers of smoke in towns. He said that if they could get rid of the domestic smoke that would immediately solve the larger part of the smoke problem in cities, and he believed that this might be accomplished without resorting to legislation of any kind by supplying the public with smokeless fuels, both gaseous and solid, at reasonable prices. They must look for the first improvement to the use of gas, because gasworks had been long established and their mains were laid through nearly all the streets and into all the houses of the working classes and most of the houses of the middle and upper classes. The gasworks must supply some form of coal residue much better than the ordinary gasworks' coke or char. They must so alter their process of distillation of coal that they might get a clean gas of fairly high calorific value, that need not have a high illuminating power, and that would leave a form of coke that could be burned in an ordinary domestic grate; so that at the same time they would be making two products in great demand—a cheap, efficient gas for the up-to-date people who would use gas appliances, and a smokeless fuel that could be burned in the old-fashioned grate by those who meantime had a prejudice against using gas or who could not afford to buy or hire new grates and appliances. At the price for which this smokeless fuel could be sold there would be a considerable profit that would go to lower the price of the gas.

Mr. Smith also pointed out the unsoundness of the finance of municipal authorities owning their own gas and electric supplies, when they made handsome profits for the relief of the rates, and pointed out that this method of contributing to the rates did not in reality lower them; it only altered the incidence of taxation. It meant that the householder who had fitted his house with gas appliances, and thus kept the atmosphere pure, was compelled to pay more in rates, whereas his next-door neighbour, by continuing to burn raw coal in the old-fashioned way, really paid less in rates, while he was helping to poison the atmosphere for himself and the community. Unfortunately, this contribution was levied by many English local authorities. The same bad system applied more or less to electricity. In Manchester last year they took £12,000 from the Electricity Department and the same amount the year before, thereby penalising the manufacturers who were using electricity in place of steam. At present electricity was doing a great deal towards the prevention of air pollution from works, because so many were adopting it now in place of steam power; but it had hardly had time to do much for domestic chimneys. Within the last year or so great improvements had been made on the electric appliances for heating and cooking, especially in the direction of economy of current, and as in many towns current for these purposes was sold at about 1*d*. per unit it was likely to be largely adopted.

At the annual meeting of the West of Scotland Sanitary Association Sir William Bilsland, Bart., the Chairman, emphasised the importance of periodical and at least annual inspection of house drainage in order to ensure its efficiency. He also said that he thought many people who were very careful about their town houses did not always consider the importance of having the sanitary condition of country houses tested, even if their residence in them was only to be for a few months.

In a lecture delivered before the Builders' Managers and Clerks of Works Association at Newcastle, Mr. J. Wightman Douglas, F.S.I., elucidated some important points with regard to dilapidations. He explained that as regards "express covenants," if the landlord undertook to do the repairs, and did not do so after due notice, the tenant could do so and recover, and if any injury occurred to occupiers through non-repair the owner was liable for compensation. It was essential to observe the exact words of repairing covenants, for if such words as "outgoings" or "Parliamentary and parochial assessments" were added to the usual clause for the tenant to pay rates and taxes, the tenant could be held liable for any work done by the local authorities in making streets or relaying drains. The words "to keep" in repair implied that the tenant must put the buildings in repair even if not in good repair when he leased them. All phrases such as to keep in "good repair," "tenantable repair," "substantial repair," meant very much the same, and the interpretation depended on the age, position, use, and period of the lease. Generally the better the house and the longer the period of the lease the more the words implied. Such clauses as "to paint every five years," &c., did not operate until every fifth year, and a person properly terminating his tenancy, say, on the fourth year, would not pay four-fifths of the cost of painting.

LINGFIELD AND CROWHURST*

LINGFIELD, at one time part of a forest, but now an agricultural and residential locality, probably took its name from the fact that the early settlers cut down the trees and made a clearing, hence we get the terminal "field," as Limpsfield, Nutfield, Hartfield, &c.

There was a large area of common land in this parish, some 1,100 acres in all, but it gradually became enclosed, partly under the Commons Enclosures Act, although probably the greater part was fenced in by settlers. There is a chalybeate spring on Lingfield Common, the water from which is supposed to be equal to the Tunbridge Wells water.

This portion of the county of Surrey is rich in reminiscences of the past—Hever, Tandridge, Crowhurst, Starborough Castle, and Lingfield. Hever and Starborough, once embattled and fortified strongholds, now mere ruins; the latter founded in 1342, in the time of Charles I., was occupied by the Parliament forces, and after the King's death was ordered to be dismantled, so that it might no longer endanger the peace of the kingdom. It was here that the founder of the College, Reginald Lord Cobham, resided.

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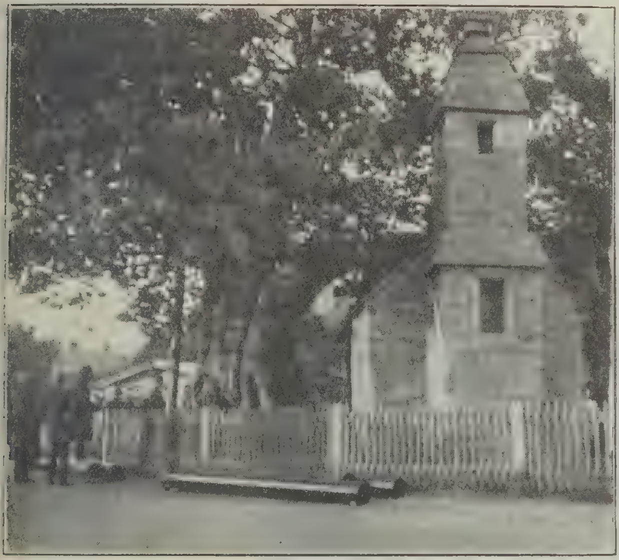
* Read at a meeting of the Upper Norwood Athenæum by Mr. D. Thorold Lowdell.

Tandridge, Crowhurst, and Lingfield were monastic establishments, although in the case of the two former the actual sites of the conventual buildings can only be conjectured. In Lingfield we have to-day viewed the site of the old College, the old Guest Hall, and what was supposed to have been the almonry (now a butcher's shop), but the fine old Collegiate Church remains, with many evidences of the work and piety of those long since gone. It is mentioned in "The Victoria History" of the counties as one of two churches of a monastic house still in use, the other one, I may incidentally mention, being St. Mary Overie, Southwark. Lingfield belonged to the Carthusian brotherhood, while Crowhurst and Tandridge were founded by the Augustinian monks—two Orders, one established and one revived in the eleventh century.

In Plaistow Street stands a fifteenth-century stone obelisk, St. Peter's Cross. There are some openings or niches in its sides, which were doubtless formerly occupied by statues. This erection was originally surmounted by a cross, and one writer says on top of it was an iron basin as a recipient of holy water for use at the church. This basin and the cross are missing, but a stone found at the chalybeate spring before referred to has taken their place. The stone built room attached to the base of the cross, and called the "Cage," was until recently used as a temporary prison.



ST. PETER'S CROSS AND CAGE.

There must have been a church here in the eleventh century, as historians tell us that Æthelfleda, wife of King Edgar, gave Lingeldefield with six hides of land and the church to the abbey of Hyde. The tower and a portion of the walling to the west is probably about 100 years older than the rest of the church, which was rebuilt in 1431. In this year a college was founded by Reginald Lord Cobham. The patrons of the church at the time were the Abbot and Convent of Hyde, who obtained a licence to cede the advowson to Reginald Lord Cobham and others, to convert it into a Collegiate Church, served by six chaplains, one of whom should govern as Master of the Collegiate Church of St. Peter at Lingfield, and at the same time a licence was granted to Sir Reginald and the others to transfer the advowson and rectory to the newly founded college. The college was built at the west end of the churchyard, and although Aubrey, writing in 1719, describes the court and cloister of the buildings as nearly perfect, nothing now remains of the edifice. We have, however, that beautifully restored Guest Hall, which was probably built some seventy or eighty years later. This with its massive old oak beams, the picturesque half-timber work, silvery with age, and its quaint muntinged windows compensates somewhat for the disappearance of the monastery.

The vesica shaped college seal represents St. Peter seated in a canopied niche with tiara, in the left hand a patriarchal cross, and the right raised in blessing. In the base a half length priest praying, and below this the arms of Cobham, the founder.

In 1449 a licence was granted to Anne Cobham, Lady of Starborough, Sir John Fortescue (Chief Justice), and others to alienate to the College the manors of Hexsted and Bylyshough, with appurtenances and five messuages, two watermills, 128 acres of land, and 16*d.* rent in Lingfield.

In 1489 John Underhelde, of Lingfield, granted to Alice Croker, daughter of John Croker, formerly of this parish, certain land called Newhachecroft and Dormannyslond (now called Dorman's Land) on condition that she find yearly for ever a wax taper of 2 lbs. weight before the Trinity in the Church of Lingfield. The seal is annexed, tied with a piece of rush.

Provost Culpeper surrendered the College to Henry VIII. on April 26, 1544, the surrender being signed by Anthony Sharde (priest) and Richd. Augur (clerk).

The same year Thos. Cawarden obtained a grant of the Collegiate Church of Lingfield, which he resigned in 1547. Wm. Cawarden, nephew and heir of Sir Thomas, in 1560 had a licence to alienate the Manor of Lingfield to William Lord Howard of Effingham.

A very interesting article appeared in the *East Grinstead Observer* a short time back describing a visit of Anne Boleyn to Lingfield. It was in 1536, not many years before the suppression of the monastery, when Queen Anne rode over from Hever, and arrived in great splendour, accompanied by some of her courtiers, among them Sir Thos. Bullen (the Queen's father) and Master Thos. Cromwell, whom the King put such implicit trust in, and was attended by Thos. Stacey and Thos. Carwarden, two of the most efficient of his pupils.

Sir John Gaynsford, with his younger brother Richard, had ridden over from Crowhurst; Sir Ralph Manly, Sir Robert Blenkinsopp, Anne Mountjoy, and many others, in their bright silks and glittering jewellery. One can imagine the contrast to the white robes and black cloaks of the Carthusian monks. The costume of the Queen herself was most gorgeous, and, quoting from the paper before referred to, for which I am indebted to Mr. W. H. Wills, it says:—

"With her sparkling eyes and crimson lips she was a striking figure even in that brilliant throng, though the more acute observers thought they noticed a strained and anxious expression on her face, and remembered the rumours that she had fallen under the King's displeasure, and wondered. But now Master Colepeper is being presented to her Majesty, and the procession moves forward to inspect the College and Church. They go over the new almonry first, and then turn to the west of the Church, where stood the College itself, a low, square building of two storeys, the upper one timbered, within which was a square court surrounded by a cloister, where the monks walked and worked. Then they went to the north of the Church to the Guest House, and finally they went to the Church . . . . where the Queen, sitting in one of the new unfinished choir stalls, heard Mass."

And now comes the real object of the Queen's visit. She had a quiet talk with Master Colepeper, and after expressing herself satisfied and pleased with all she had seen, she asked "Would the Provost receive a young friend of hers, one Rich Knoyle, among his brethren?" The Provost, knowing that the endowment was for but six monks, and that there was no vacancy, and that Knoyle was a notoriously bad character, tremblingly refused. The Queen rode away in wrath, but it was not long before one Thomas Stacey, agent of Master Cromwell, rode up to the College and demanded admission in the name of the King, which was at once granted by the Master, who took the requisite oath and surrendered all to his Majesty; and all surrendered save one Thomas Wyche, the carver of the choir-stalls. He faithfully performed his duties daily, finishing his carvings before Thos. Carwarden took possession. Again, quoting from the same paper:—

"And the new owner, superintending the work of spoliation and destruction in the church, came to the newly-finished choir stalls. There, in the seat where Anne Boleyn had sat, Thos. Wyche in grim satire had carved her face, but her eyes were fierce, her brow frowned, and her lips were set. And Thos. Carwarden laughed—laughed as he stood there amidst the evidence of her power, for who feared the Queen now! was she not to be executed for treason the next day?"

The church, dedicated to St. Peter and St. Paul, is built of stone and roofed with Sussex stone slabs. It is of the

Perpendicular style, and has nave, north aisle, and north and south side-chapels, all of which have the same form of waggon roof. The flanking tower, of fourteenth-century work, contains five bells. On the north side, between the third and fourth windows, is a polygonal projection which formerly was a stairway to a rood-loft, although there is no internal communication at the present time. This turret is now being used as a heating-chamber or coal-hole; its walls are of the same height as the aisle, and, like the main roof, is covered with stone slabs. The external door has been improperly inserted, and the lower and upper interior doors have been closed up, leaving no trace of the former. According to the Rev. J. C. Cox, in his "Religious Houses of Surrey," I gather that the upper doorway emerged at the extreme east end of the north aisle, where the north chapel commences, on to the top of the rood-loft. The threshold is nearly 13 feet above the present floor-level, and on the right-hand side, the outer moulding of the aisle-arch respond being cut away to about 8 feet below the threshold. In my opinion, this does not necessarily follow that the rood-loft platform was below the top step of stairway, although there might have been one step down.

The rood-loft extended from the north to south walls, being 63 feet long. The rood-screen, under the chancel arch, was standing in 1844, but must have been removed in 1847, at the time of the alterations and repewing. It was of the same design as those in line with it across the aisles. The four enclosing screens of the choir and side chapels have square Gothic pateras, alternating with shields in the cavetto of the lintel, and have buttresses attached to the faces of the principal muntins, and are all of about 10 feet 6 inches in height. The north and south aisle-screens have a series of mortice-holes, 7 inches by 3½ inches, along the top, some of them with the mortice broken in; these are the only traces of the ancient rood-loft.

CROWHURST CHURCH.

Brayley gives the total length of the church at 140 feet and width 70 feet, although I believe the interior measurements are 116 feet by 63 feet. He probably gives the exterior to the outside of the buttresses.

The east window is not the original, but has some old glass.

It is curious to note that, with one exception—that to the west of the tower—all the windows in the north and south walls are of one design, and were possibly inserted in 1847, when, apparently, extensive work was carried out. From a sketch dated 1810 these windows on the south side of the church are shown with pointed heads and the mullions intersecting, which is, of course, of earlier date than the present form.

The chaplains' stalls in the choir are particularly interesting, beautifully carved by Thomas Wyche, the faithful chaplain who remained to complete his task after the other brethren had departed. It is possible that these seats were on both sides of the choir, but vandalism has wrought its work and only a few remain.

There are two unique sixteenth century tile tablets on the wall near the organ. Other treasures there are here—the chained Bible, the old Prayer Book, the chalice, the parish registers, the royal arms, brass chandelier, the peal of bells, and the well-preserved tombs, brasses, tablets, &c. I will refer briefly to each of these memorials of the past.

The black-letter chained Bible is supposed to be a "Miles Coverdale," and the date is given as 1600. This has been injudiciously rebound. The stand, or lectern, on which it rests is of oak, and tradition says that the round-headed opening at end of same was where the holy-water, supplied from the basin at the top of St. Peter's Cross, used to be kept, but the holes are too small for this to be the case. The old Prayer Book, with the New Testament, shows the date of publication (1678). The chalice, which I understand is still in use, is of about the same date as the Bible. The Registers date from 1559. I had not an opportunity of seeing these before writing my paper, but I think it was in Brayley I found the following lines, which he quotes from the oldest register:—

> Mors tua, mors Christi, fraus mundi, gloria cœli
> Et dolor inferni, sint meditanda tibi.
> (Thy death, the death of Christ, the world's temptation,
> Heaven's joy and hell's torments, be your meditation.)

The royal arms, bearing the letters "A.R.," are on the west wall of the south chapel, which is also the east wall of the tower. The brass chandelier was presented to the church by one William Agate in 1754. Of the peal of bells Mr. F. Cobham, in his useful little work, "Antiquities of Lingfield," gives us the following information:—

The marks on the bells are:—

1 }
2 } Bryan Eldridge made mee 1648 { RC. CK.
3 } { RC. CK. &c.
4 }
5 Richd. Constable.▾ Christopher Knight.
Churchwardens 1648.
Francis Collin
B.E.
diam. of treble 33″ of tenor 44″.
Edwd. VI. 6 Return:—"Item in the steple
ffowar greate belles, and a litell bell."

Of bells made by Bryan Eldridge there are in Surrey seventeen, and two more which are known to have been re-cast; among them is the entire peal of five at Lingfield, dated 1648, a rather unusual thing for the time of the civil war. (Stahlschmidt's "Church Bells of Surrey.")

And now we come to the memorial tombs. The most ancient tomb in the church adjoins the chancel screen on the north side, and contains the remains of Reginald, first Lord Cobham, who died in 1361 of the pestilence. He was one of the earliest Knights of the Garter, and occupied the ninth stall at Windsor on the princes' side. In 1346 he was one of the principal leaders at the Battle of Crecy. In 1356 he was a marshal in the Army, and took part in the battle of Poictiers. In 1342 he was raised to the baronage as Lord

Cobham of Sterburgh. Lord Cobham married Joan, daughter of Thomas, Lord Berkeley, and left a son and heir and a daughter.

The effigy of the knight is represented with face uncovered, a helmet on head, with a camail of chain-mail attached to it, and falling below the chin; the body is covered with a short surcoat, which was richly gilt, and was emblazoned with the arms of Cobham on the breast. This is confined by a girdle composed of small square plaques filled in with blue enamel. The plate-armour consists of jointed greaves and brassarts and vimbraces, with protection for elbow and knee joints. There are twelve escutcheon forms upon the tomb, representing family alliances.

The second Baron Cobham left instructions that he should be buried "de rere le test mon très honorable sieur et père" ("behind the head of my very honourable lord and father"). This tomb is near the north wall in the north chapel, but it originally stood near the chancel screen. It has a beautiful effigy in brass, and is a fine illustration of the change in armour during the forty years since his father's death. He has a pointed skull-cap, a hood of chain-mail, and a shirt of mail also. This lord was appointed one of the Council of Fourteen to carry on the Government during the minority of Richard II. He left many legacies to churches, among others "to the warden of the goods of the parish church of Lyngefield for the maintenance and support of the said church, 40s. and my best vestment and chalice." He died in 1403.

There is a white marble tablet in the chancel to the memory of Sir James Burrows, who died in 1782. From the inscription we note he was a Fellow and once Vice-President of the Society of Antiquaries.

The church was new beautified in 1757, and repewed and repaired in 1847, at a cost of £2,343.

Crowhurst, about three miles north of Lingfield, was in former times extensively wooded, as its name implies. In the churchyard there is an old yew-tree about thirty feet in circumference. Its age possibly exceeds 1,000 years; it is, indeed, marvellous how a tree, hollowed out by the hands of man, bound round with iron bands, and rods fixed here and there, should still thrive, and yet the top remain fresh and green. The cannon ball which is in the tree was found embedded during the hollowing process.

Haydn's "Dictionary of Dates" (1878) says the origin of planting yew trees in churchyards (these latter being fenced) was to secure them from the cattle, and so preserve them for the encouragement of archery. As in the words of Keats: "Again I'll poll the fair-grown yew tree for a chosen bow."

At "The Mansion," opposite the church, are some curiously clipped yews.

Aubrey speaks of a spring a little below Mr. Angell's house here, in a grove of yew trees, which tradition says rises on the approach of some remarkable alteration in Church or State.

It is to be regretted that we were unable to view Crowhurst Place, the old moated house built about the time of Henry VII., and where the Gaynsford family lived. It is recorded on a stone in the churchyard, bearing the arms of Gainsford, that Erasmus Gainsford, of Crowhurst Place, was the eldest descendant of that family residing there long before the Norman Conquest. The family, however, purchased the manor of Crowhurst in 1338.

The Angell family settled here before 1615. Their mansion was opposite the church, and is now a modernised farmhouse.

Sir John Gaynsford, Knight, who was M.P. for the county in 1467, married six wives, by whom he had twenty children; and John Angell, caterer to James I., Charles I., and Charles II., and chief porter at Windsor, and who resided at the mansion opposite the church, also had twenty children.

Crowhurst Church, dedicated in honour of St. George, is mentioned in the Valor of 1304. The patronage originally belonged to the priory and convent of Tandridge, and was given by Henry VIII. to John Ride and others.

The parish registers extend over 500 years. In January 1652 "part of the body of Crowhurst Church which had been in heapes a long time was made plain and repaired."

The church has a nave, chancel, and south aisle, and contains portions of different periods of architecture, from Early English down to Perpendicular. It has a picturesque exterior, its shingled spire rising through the west end of the nave giving dignity and grace to the otherwise somewhat squat building with its low-pitched roof. The font, which might be of Norman times, more probably Early English, is octagonal, dying on to a square supported by a central round column with four smaller columns at either corner.

YEW TREE, CROWHURST CHURCHYARD

The most striking tomb in the church is the alabaster one in the chancel, facing the altar. Here lies buried Sir Reg. Cobham, son of the preceding lord, and Ann, his second wife, his first wife being Eleanor, daughter of Sir Thomas Colepeper. It was this Sir Reginald who rebuilt the parish church and founded the college; he died in 1446 and directed that his body be buried in the Collegiate Church of Lingfield, before the high altar. The knight's effigy is in a perfect suit of plate armour, except the head, face, and hands, the head being laid on a helmet surmounted by the family crest. Here, again, we see a further change, the armour becoming much heavier and more elaborate, and here we have a "skirt of trees." The lady's head is supported by two angels.

The Purbeck marble tomb near the north chapel wall is supposed to be the tomb of Sir Thomas Cobham, who married Ann, daughter of the Duke of Buckingham, and died 1471.

I can only give a very short account of some of the remaining brasses and tablets.

In the north chapel, on a brass plate, "Hic jacet Isabella Cobham."

Another brass, under the figure of a woman praying, "Orate pro anima Katerine Stokett."

There is a black marble gravestone to George Turner, late of New Place, who died 1682.

In the chancel, on black stone, to Gulielmus Widnellus, with Latin inscription and the following lines:—

Desist those profane feet, forbeare
To fowle this hallowed marble where
Lies Vertue's goodness, Honour's heire.
'Cause the world not worthy him to have
The Great Jehovah shut him in this grave.

The lower portion of the wooden framework supporting the turret and spire springs from below the floor-level of the church, the four massive front posts having a four-centred arch with traceried spandrils running through same and forming a kind of west screen.

Lady Uvedale, dying in 1489, bequeathed 20*s.* for the rood-lights. There was formerly a rood-loft 17 feet 9 inches in length, the width of the nave. The Rev. A. Hussey observed, in 1842, that marks then visible in the chancel wainscot proved the latter to have been co-existent with the rood-loft itself.

The hexagonal pulpit has linenfold panels, and must be of Jacobean date. Manning says the east window is of three lights and six smaller ones above, and contains some old stained glass.

There is a fine specimen of an old Sussex cast-iron slab to the south side of the altar, whereon are figures of two boys in one small square, over them "W.R."; in another two girls kneeling, in the middle a woman in a winding-sheet, and the following inscription, in which the F's are written upside down and the S's reversed:—

HER : LIETH : ANE : ℲORST
R : DAVGHTER : AND :
HEYR : TO : THOMAS :
GAYNSℲO RD :ESQVIER.
DECEASED : XVIII : OℲ :
IANVARI : 1591 : LEAVYNG
BEHIND : HER II : SONES
AND : V : DAVGHTERS.

Below are two small shields of arms. On the one a lion rampant. (2) ——. (3) A chevron between three greyhounds. (4) ——. Her method of publishing her claim to the family of Gainsford.

On this side of the chancel, inside a semi-circular arch, is a tomb to John Gainsford, 1460. The border is ornamented with various sculptured devices, such as a grapple with a cable twisted around it, a branch of oak with acorns, &c. In the centre are two grapples with flukes set against each other, in one the fluke being double. On a covering slab is a brass figure of a man in armour, with sword and spurs, his feet resting on a buck.

Adjoining this, under an obtuse arch, is another monument, but with no inscription. Under an achievement against the north wall is another, in memory of Nicholas Gainsford, who died in 1705.

In the churchyard, on a tomb, is the following:—

Here lieth the body of Mrs. Susanna Turner, died
July 16, 1800, aged 47 years,

and this epitaph:—

I'm now at rest, and free from all the cares
Of this tumultuous world and its affairs;
I now shall sin no more, no more shall weep,
For now I do enjoy a quiet sleep.

And there are many other interesting epitaphs in this churchyard, but space will not allow me to mention them here.

New Place, close to the station at Lingfield, is well worth mention. The present house, built in 1617 but recently altered and restored, was erected by one Turner. An older house consisting of four gables is supposed to have been there as far back as 1300. As the cottages close by belonged to the college, it is quite possible that this was the residence of some one connected therewith. We read that in 1753 Thomas Griffiths, "ye old tinker," resided at New Place, and kept nineteen cats.

ORIEL COLLEGE, OXFORD.

By Arthur W. Martin, M.A.

(*Concluded from last week.*)

As has been mentioned, Oriel now possesses no buildings dating from the time of its foundation; but although architecturally it does not claim many features of particular interest, yet the general impression made on the mind of the visitor, as he passes through the gateway under the tower, is one of pleasure at the view which meets his eye. The Front Quad has, as has been said, an especial charm, which is the result mainly of the harmonious and symmetrical grouping of the buildings, and of the weather-stained and crumbling stone of which they are constructed, and which gives the impression of age greater than that which they really possess. An advantage which the Quad has over those of some of the other colleges is that its construction was practically continuous and was spread over a comparatively short time, the result being that the original design was carried out without any alteration. The tower, for instance, bears its due and intended proportion to the adjoining parts, and is not dwarfed by subsequent additions as has often been the case elsewhere. The general style of the Front Quad is that sometimes described as "Oxford Gothic"—an attempt, very often successful, to combine the features of the true Mediæval Gothic with ornaments and ideas borrowed from the Renaissance—"that is to say, it is neither Mediæval on the one hand nor unmitigated Renaissance on the other. It is a hybrid if the truth must be told; and yet how the homely picturesqueness of it grows upon one! How remarkable considering the sort of buildings that were being reared contemporaneously in other parts of the country, how remarkable is the College in retaining so many characteristics as it does of earlier traditional work! Here are mullioned windows hooded by labels; here are string-courses to scale the building and to define its several stages just as would occur in a product of the fifteenth century! Here also, on the east side of the Quad, are windows which, rejecting the late form of Tudor arch, obviously and deliberately revert to the earlier two-centred arch, with tracery flowing much more on the lines of the fourteenth century than anything to be found in Perpendicular work. Only the gaunt emptiness of the oval in the head bewrays them."*

The Second Quad, which one enters by a narrow tunnel-like passage leading from the north side of the Front Quad, is not completely surrounded by buildings On the east side, and continuous with the buildings of the Front Quad, is the block known as the Robinson Building the erection of which was due in great part to the generosity of John Robinson, who, after a successful career in various fields of activity, finally became Bishop of London He had held an Oriel Fellowship from 1675 to 1686. Th building was started in 1719, and was finished in a shor time. Robinson's example was imitated by Carter, wh was Provost from 1708 till 1727, and in 1729, as the resul of a legacy left by him for the purpose, there was erecte the building which still bears his name, and which form the west side of the Quadrangle.

On the north side of the Quad stands the library—building in the Ionic style of architecture—which has bee described as "much admired at the time of its erection. The architect was Wyatt, and the foundation-stone wa laid in 1787. It is difficult to see much attractive in th appearance of the building, and it must be admitted tha it harmonises but indifferently with its surroundings. Th upper floor is occupied by the library, and on the groun floor are the two Senior Common Rooms. The latte contain a most interesting collection of portraits. Amon those represented are Copleston, Eveleigh, Hawkin Cardinal Newman (by Ouless), Matthew Arnold, T. A Froude, Samuel Wilberforce, and Keble.

Finally, to the north of the library lies the Quadrang of St. Mary's Hall—known familiarly to undergraduat as "Skimmery"—which, after a life of more than fi hundred years as an independent institution, has aga become merged in Oriel. The site was originally occupie by the Rectory of St. Mary's Church, and was presente by Edward II. to Oriel in 1325. In 1333 the College co verted it into a separate foundation, and it remained until nearly the end of the last century. The buildings a picturesque, if miscellaneous, in style. The old hal turned into a Junior Common Room, and the chapel abo it, now used in connection with the library, are interestin and date from the beginning of the seventeenth centur The north side, however, of which a plate is here give now no longer exists, as it has been swept away to mal room for the new buildings. The carrying out of th scheme, which the College had long cherished, for th extension of its buildings to the High, was accelerated by the munificence of the late Cecil Rhodes, who, in addition to the great sum which he left for the furtherance of his educational ideas, bequeathed £100,000 to his old College. Part of this sum he allocated to the contemplated building extension. Accordingly in 1909 the work was begun from the plans of Mr. Basil Champneys, whose recent "new buildings" at Merton have been so much admired.

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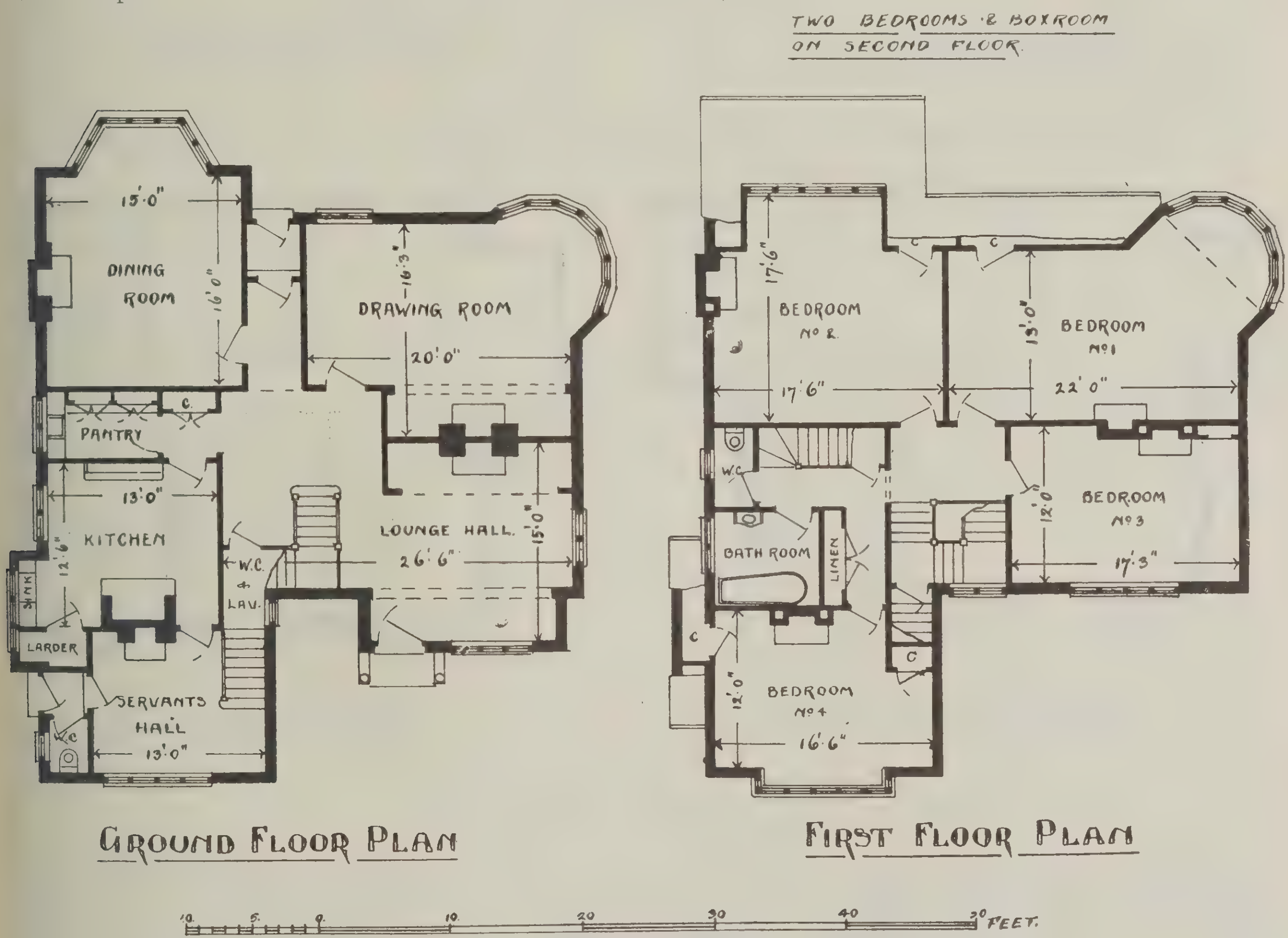
* Mr. Aymer Vallance, in the *Oriel Record*, September, 1909.

One cannot leave the history of Oriel without some mention of its "golden age," the time during which it reached its highest eminence, and was admittedly the most intellectual College in the University. This period began under the rule of Eveleigh, who was elected Provost in 1781, and whose reforming zeal had, with the aid of Parsons, Master of Balliol, and Cyril Jackson, Dean of Christ Church, brought about the institution of the Honours Schools in 1801. The chief cause of the renown of Oriel, which dates from this time, was the throwing open, free of all restrictions of residence or place of birth, of the Fellowships. The result was that the best scholars in the University offered themselves as candidates, and an Oriel Fellowship came to be looked upon as one of the highest prizes obtainable in the academic world. Edward Copleston, who afterwards became Provost, and whose name is closely associated with this famous period in the history of the College, was the first to be elected to a Fellowship under the new regulations. In these elections the underlying principle was, on the one hand, the avoidance of any slavish regard of successes gained in the Schools, and, on the other hand, the choice of the man whose mind was considered "an instrument, and not a receptacle"—the man who was likely to become an intellectual force. The presence of such men as tutors naturally stimulated the undergraduate section of the College, with the result that for many years the chief prizes of the University fell to the lot of Oriel. There was thus gathered together a band of men whose preeminent ability made Oriel the intellectual centre of the University. These were the great days of the Oriel Common Room—the days of the "Noetics" or "Intellectuals," to be followed at a slightly later time by the founders of "Tractarianism," for Oriel has always been looked upon as the home of the Oxford Movement, if only for the long and close connection between John Henry Newman and the College. The appointment in 1828 of Hawkins as Provost was, although not so recognised at the time, in reality the death-blow of the intellectual preeminence of Oriel, but it is now idle to speculate as to what would have been the course of events had Keble, who was the other candidate in the field, been elected to rule the College.

From that time down to the present day the life of the Society has resembled closely that of any other of the Oxford colleges: that is, it claims a record of useful educative work combined, in the case of our College, with exceptional success in athletic achievement—for the name of Oriel has for many years been famous on the cricket ground and the football field. May this happy state of affairs long continue. In the words of the College motto, "Floreat Oriel!"



PLAN.—ASHLEWORTH, GERRARD'S CROSS.

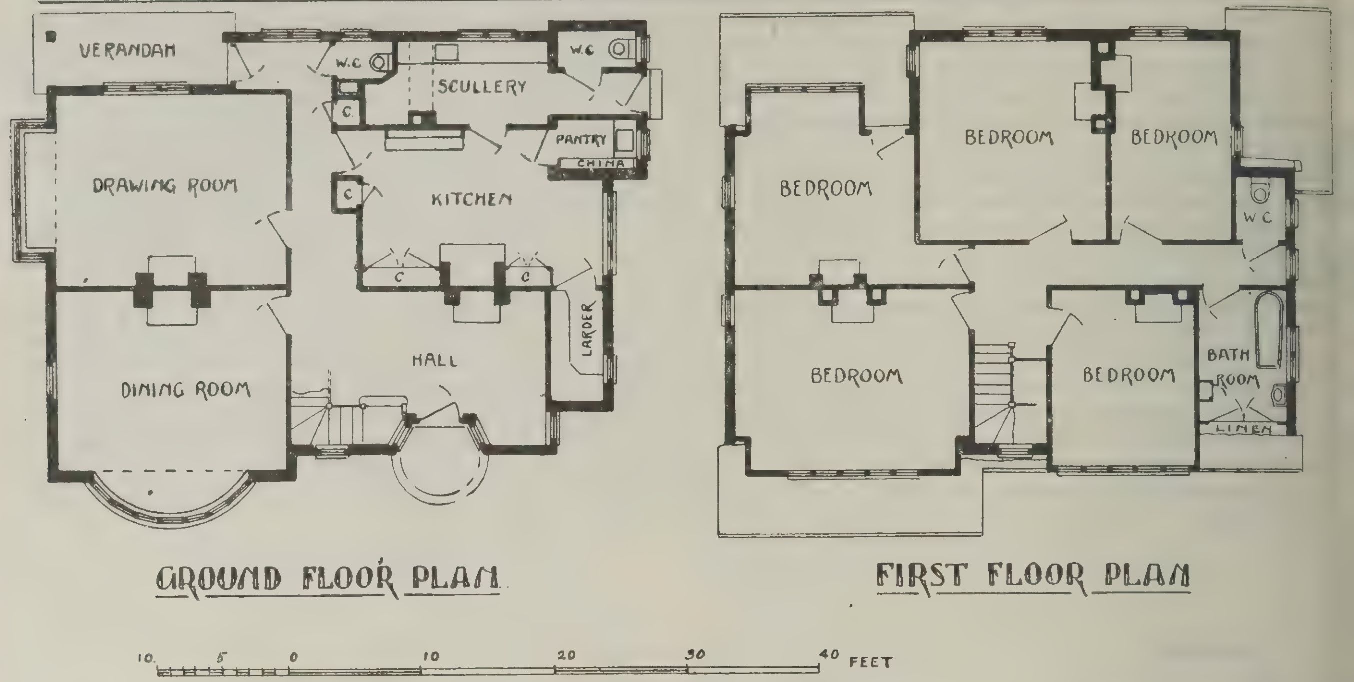
ILLUSTRATIONS.

MODERN BUCKINGHAMSHIRE HOUSES.

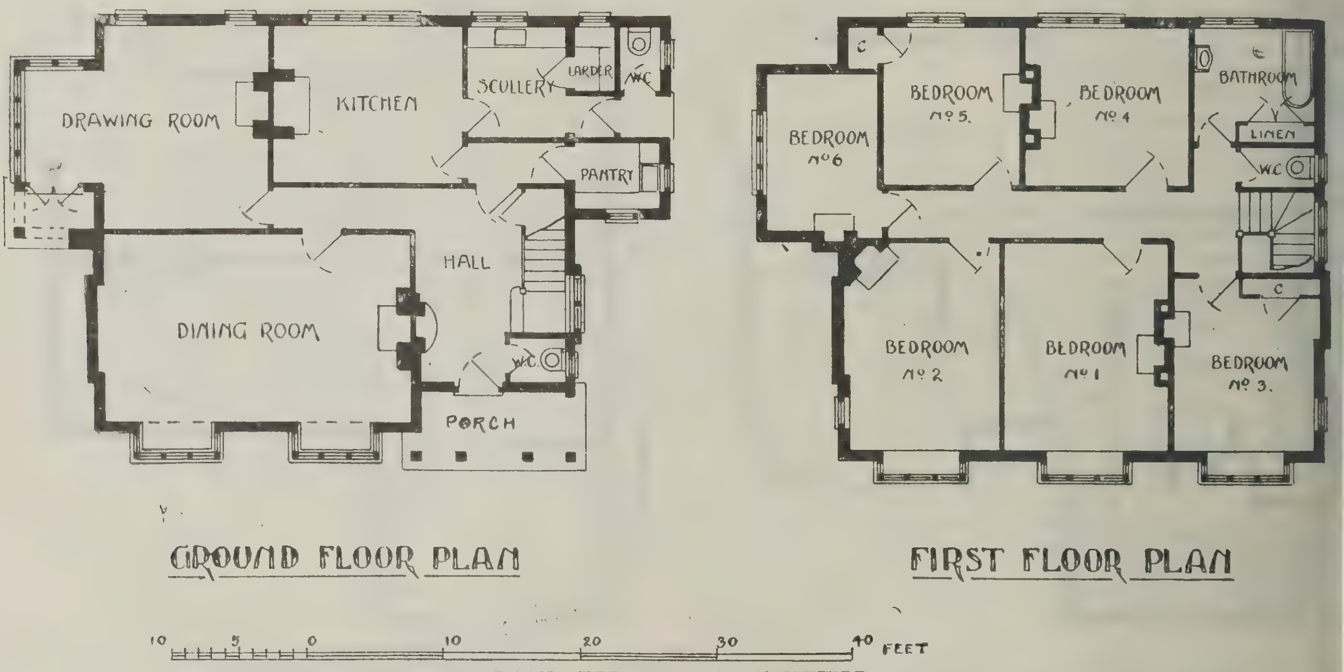
These houses now illustrated have been erected during the last four years from the designs and under the superintendence of Messrs. Johnson & Boddy, and are of interest as representing modern domestic work of an artistic nature.

Ashleworth, Gerrard's Cross, is built on a well-wooded site, and has fine views over Chalfont Park. The planning of the house is a little unusual, there being no scullery, but a sink is fixed in the kitchen in accordance with the wishes of the client. It will be seen that a servant's hall is obtained by this method, and a back staircase meeting the main staircase sufficiently high up so as not to spoil the privacy of the lounge hall. Externally the woodwork is finished with "Solignum," the walls of cream rough-cast, and the roof of red sand-faced tiles. The woodwork internally is painted, and the walls distempered. Messrs. Y. J. Lovell & Son were the builders.

Manawatu, Beaconsfield.—This house is on one of the highest parts of Beaconsfield. There are seen from all rooms lovely views of woodlands (mostly beech). The walls are built



PLAN.—MANAWATU, BEACONSFIELD.



PLAN.—UPLANDS, BEACONSFIELD.

of stocks covered with smooth cement, tinted cream, the brickwork, where exposed, being of local mottled reds. Although the roof is kept low, there is very little cutting in the bedrooms. All the external woodwork has been treated with "Solignum," also the hall and passages. The remaining work is painted. The internal walls are distempered. The windows are casements filled with lead light glazing. The builders were Messrs. Y. J. Lovell & Son, of Marlow and Gerrard's Cross.

Uplands, Beaconsfield.—This house, built on the Burke's Estate, is within one minute of the site on which stood the house occupied by Burke. A considerable amount of woodwork has been used externally as being suitable to a house surrounded by woods. The brickwork, except where exposed, is of stocks covered with smooth cement. The roof is of dark sand-faced hand-made tiles. The whole of the external woodwork is treated with "Solignum," the interior painted. The walls internally are distempered. The windows are casements filled with lead light glazing. The builders were Messrs. Y. J. Lovell & Son, of Marlow and Gerrard's Cross. In a subsequent issue we shall publish some interior views of this house.

THE NORTH PORCH, BRIDLINGTON PRIORY, YORKS.

BRIDLINGTON Priory Church, on the N.E. coast of Yorkshire, is renowned for the beauty and proportion of the Early English nave arcade. The north porch, which is not used for entry into the church, is a most beautiful specimen of twelfth-century architecture and workmanship. The porch is vaulted, in which dark brown stones are used as borders, forming a beautiful contrast with the white stone severies.

The upper portion of the porch has been restored, presumably on the old lines, but sadly lacking the strength and character of the old work.

A store-room, or priest's chamber, on the porch, is reached by a narrow staircase in the width of the wall, and the entrance is about 15 feet above ground floor level. Great variation is found in the carving, use being made of birds and beasts, heads of kings, queens, bishops, &c., all of which give a most charming effect.

It is a pity that this beautiful work is not better known.

The drawing from which our illustration is taken was awarded a prize in *The Architect* Students' Sketching and Measuring Club.

OXFORD COLLEGE SERIES—ORIEL.—INNER QUAD AND ST. MARY HALL QUAD.

WE this week give further illustrations of Oriel College, in continuation of the series commenced last week. Those views were wrongly attributed to Mr. A. E. Walsham, the photographs from which our blocks were prepared having been taken by Mr. J. W. Borland and Mr. J. Halliday Borland.

THE ARCHITECTURAL ASSOCIATION.

An ordinary general meeting of the Architectural Association was held on Monday, November 27, Mr. Gerald C. Horsley, President, in the chair.

It was announced that the Athletic Club Dance will be held in the Wharncliffe Rooms on December 8 at 9 P.M. The following elections were agreed to: Mr. W. Allison, Wandsworth Common; Mr. G. B. Booth, Bayswater, W.; and Mr. M. H. C. Doll, Much Hadham, Herts. The re-instatement was announced of Mr. G. A. Humphreys, Llandudno. The President announced that there is a vacancy on the Council, and that the Council will nominate a member to fill this vacancy at the next ordinary general meeting, when it will be possible for members to make further nominations. A vote of thanks was passed to Mr. Francis Sells for presenting to the A.A. a copy of *Ye Solace of Pilgrims* (a description of Rome in 1450).

Mr. Arthur T. Bolton then read a paper entitled

Thoughts on Jacobean Architecture.

In his opening remarks Mr. Bolton said he had to confess to having always found the subject of Jacobean architecture very obscure. Domestic architecture was in itself essentially complicated. For instance, in looking into the history of a house extending over two or three centuries, the customary absence of records, either of building or reconstruction operations, renders many common assumptions and historical deductions very unsafe. Broadly speaking, each generation makes its own alterations; and sales, with the accompaniment of new ownership, are pretty certain dates of successive upheavals. A good many facile deductions based on plans of old buildings seem to rest on insecure foundations.

In speaking of Jacobean architecture, Mr. Bolton said that he proposed mainly to adhere to the reign of James I. and its sequel under Charles I., but in no case to cross the gulf of the Civil War—that is to say, from 1600 to 1649.

Off-hand most architects would state a distinct preference for the Elizabethan work of the preceding half of the sixteenth century, and admit a belief that Jacobean work was a decadence from a more vigorous and interesting class of work. Probably the truth may be found in recognising that it was a transition age, with all its accompanying difficulties, weaknesses, and occasional acts of baseness. In spite, however, of the assumed signs of decadence, we have this paradox, that in architecture, music, and painting we stood, as a nation, on the verge of a veritable golden age. The shifting direction of Tudor, Elizabethan, and Jacobean foreign and social policy has its reflection in our architecture. Italy, France, the Spanish Netherlands, the liberated Netherlands, Spain itself, and more transiently Germany, each and all were shifting centres of influence. It was not only by the diffusion of ideas and of books and prints, but also by the actual immigrants, largely workers and workmen, that these forces were felt. All the while, however, England was finding herself not only politically, but also artistically, and, as a man grows, absorbing or rejecting those elements which the state of her growth dictated.

By the end of the seventeenth century a vast fund of experience had been accumulated. Able workmen abounded, and the need of the moment was for some directing mind to focus the confused and scattered elements into a lucid whole, formulating a line of action along which future progress could be assured. The need was met. In Inigo Jones an architect appeared whose work was destined to bridge even the gulf of civil war and to determine the future course of English architecture.

The Elizabethan and Jacobean ages, however, were not unprovided with skilful architects. Quite a list of names of men, whose biographies we should be only too glad to have, has been collected. The Thorpe collection of plans, drawings, and designs show that in the Thorpes, father and son, we have a type of the high degree of zeal and intelligence that the age produced. The impression produced by a careful study of the drawings is that in them we have the record of studies made and designs conceived in the true spirit of the working architect. Thorpe was interested in many things, and, above all, desirous of extending his outlook. He seems to be groping after the development that Inigo Jones was to achieve.

The main dates in Inigo Jones's life are the following: Born in 1573, he went to Italy up to 1604, and may have been at the Danish Court in the service of King Christian prior to that date. He is known to have been in England for the Mask of Blackness, presented by Anne of Denmark, wife of James I., on Twelfth Night, 1604-05. Inigo Jones was a King's Messenger to France in 1609. He was appointed Surveyor to Henry, Prince of Wales, from January 16, 1610, up to his death on November 6, 1652, and was a good deal occupied in the production of the famous Court masques, supplying scenery and devices to Ben Jonson's libretti. Over the ordering of these performances a violent quarrel between them broke out. Jones being neglected at Court between 1612 and 1621, went to Italy a second time in the summer of 1613, but definitely returned home in the autumn of 1614. He was appointed Surveyor-General of Works in 1615.

Of the early Jacobean work attributed to this stage of his career, Bramshill is the most important. It is certainly built over an old building to the extent of being tied in plan by the preceding structure. Begun in 1605, it was completed in 1612. Bramshill illustrates, as well as Hatfield, the Jacobean tendency to discard entablatures and obtain effects independently, either by flat masses or by vertical breaks.

Hatfield, 1607-11, suggests that the superintendent of the works had been supplied with a plan and only two elevations, and that in working out the other two as he proceeded he dropped into the gable style in which he had probably been brought up. Owing to the omission of Hatfield in Thorpe's collection, it is hazardous to express any opinion on the authorship of the design of the main façades. However, the omission in the building accounts for the period in respect of payments for architectural services is not conclusive evidence against any architect being employed. There were various ways of acknowledging their services in those days.

The plan of Hatfield is of very great merit. It seems to be a development of Hardwick Hall, but while the latter is a more coherent design, it is in respect to Hatfield as a summer villa or casino compared to a house. Unfortunately, the plan is not fully worked out architecturally; the chimneys illustrate it, rising up in long, ugly lines like nineteenth-century party-wall stacks, showing a want of that combination and grouping for which a skilful architect will always provide. The worst injury after 300 years' occupation is in the re-glazing of the two lower floors, including the unfortunate screenwork in the arcade of the cloisters. Naturally, to our notions of old work, there is too much paint, gilding, and polish; but in this we perhaps differ from the Jacobeans themselves. Knole staircase painting, for instance, has the appearance of being original. They did not appreciate oak as we do, and they had at times a very naïve taste in gold and crimson plasterwork.

The Jacobean work at Knole, Kent, 1603-05 (and later), is in the nature of an alteration of an older house, a refashioning to date of an old double quadrangular plan. As the work was for the Earl of Dorset, for whom John Thorpe had designed Buckhurst, and as it shows in the gables and treatment of the south side traces of his manner, it is fairly safe to accept that attribution.

Inigo Jones made designs for the Star Chamber in 1617, and tradition has also connected him with the Rolls Chapel, and he laid out Lincoln's Inn Fields in 1618. The decisive stage of Jones's career began in 1619 with the Whitehall designs, but the Star Chamber design of two years previous is quite Palladian. There is, however, in the Burlington-Devonshire collection an admitted drawing of a semi-Jacobean character signed by Inigo Jones and dated 1616. It is a three-storey narrow entrance bay, ending with a pediment abutting on a pierced balustrading, Jacobean in character. It is decidedly an experiment in style. As to Chilham Castle, the structure is differentiated from a simple traditional house by a unity of conception arising from the deliberate adoption of a complicated hexagonal plan, having an evident intention of creating a court effect at the back, visible by means of the open sixth side of the hexagon. The plan, moreover, shows the study of the outcome of the use of the hexagon, because the extended front and the management of the right and left wings are calculated to obviate any defects of the bare geometrical form. We have here, therefore, something much more complex than the triangle of Longford Castle, or the symbolic trinity of Rushton Lodge, or the geometrical fancies of John Thorpe's book.

There seem to be no real grounds to doubt Inigo Jones's authorship of the famous second quadrangle of St. John's College, Oxford, including the lovely garden front. Archbishop Laud had the work done in 1631. Laud's Chaplain and biographer, after describing it, says:—"The whole composure fashioned in an excellent symmetry according to the exactest rules of modern architecture, not only graceful in itself and useful to that private house, but a great ornament also to the University." The Whitehall designs of 1619 are usually taken as marking out Inigo Jones as a pure Palladian, and from this standpoint other work attributed to him is judged. Eleven years later, however, he gives us this lovely garden façade, English, but with a fine shading of Italian ideals, as unique in its kind as some of Shakespeare's "sweetest wood notes wild." There seems no reason to refuse the authorship of the porch of St. Mary the Virgin to Jones as well. Purists may say what they like, the fact stares us in the face that this little work is a gem of its kind; one of those things that only a master can achieve with success.

The highly interesting church of St. John, Leeds, 1631-3, and St. Catherine Cree, 1628-30, illustrate the tendencies of the ecclesiastical architecture of the age. The London church is much more advanced, having round arches with coffered soffits rising direct from the capitals of Corinthian columns, as is also the case with the cloister arcade at St. John's College. The outside follows the usual lines of an old mediæval city church, but the semi-Perpendicular tracery windows are more or less framed by semi-Classical mouldings having the character of architraves. The ecclesiastical policy of Charles and Laud, steering between Rome and Geneva, required precedents of a recognisable English character. These semi-Gothic churches are more typical of the age than St. Paul's, Covent Garden, where the design is related to that of the Piazza, in which it stood. In any event, we have in the chapel of Lincoln's Inn, 1617-23, existing, but added to, in the church of St. Albans, destroyed in the Great Fire, examples of Inigo Jones's handling of Gothic architecture.

When we come to Kirby Hall, 1638-40, we find Inigo Jones completing the work of his predecessor, John Thorpe, 1570-72. There is a good deal yet to be learnt about the building process at Kirby. It looks very much as if Jones undertook there what he had already done in 1624 at Castle Ashby, *i.e.*, to build a connecting block between two extended wings, completing a quadrangle in each case. Kirby, however, is the more extensive undertaking, and one that is more sympathetic to the older building.

Much of the Jacobean fantasy in ornament is only a shading, or texture, over the surface of the architecture. It plays the part of the apparently excessive lines of a mezzotint, preventing by a play of light and a fretted surface a severity of mass inconsistent with the fancy or gaiety of the general conception.

It is certainly true that the study of Elizabethan and Jacobean architecture has been prejudiced by the excessive attention given to its often ill-regulated ornamentation. Naturally, if we adopt only a standard of decorative design, such as, say, King's College Chapel screen at Cambridge, where the level of the original examples, as at Perugia and Verona, is reached, then the great body of Jacobean detail must strike us as coarse and debased. Jacobean work varies enormously, fluctuating between the fretted, bossy, intricate, and involved types that prevailed in Elizabeth's reign, and better models inspired by the increasing tendency towards ideals of classic grace.

Finally, we may well be careful in ascribing mere ignorance to some of these Jacobean architects as the motive of their handling of classical detail. There will be found in the best of it a wit and humour of treatment which implies knowledge, observation, and thought, and is as legitimate as any other form of fancy or burlesque. The actual degree of refinement is in the discretion of the artist, and it will be a reflection of the taste of the age. There are instances where these brave shows touch high levels and awake deep feelings, as though they were already tinged by the scaffolds of the Civil War. We do an injustice to this half-century if we are alive only to its materialistic pomp. The Jacobean age closes with the violent deaths of Buckingham, Strafford, Laud, and Charles, with a Court in exile, a ruined nobility and gentry, and a broken and scattered school of artists.

Mr. Bolton led up to the conclusion that we inherit from this half-century some unique and lovely English homes, and derive therefrom a pleasure that is certainly no mere outcome of sentimental associations. Places like Fountains Hall, Abbots' Hospital, Kirby Quadrangle, St. John's, Warwick, Moyn's Park, and the garden front of St. John's, Oxford, produce an impression that no prejudgment can efface.

Mr. Lawrence Weaver, who was invited to propose a vo
of thanks, said he had been much impressed by the eruditic
which Mr. Bolton had brought to his task. He had bee
particularly interested by the information as to Inigo Jone
which, he took it, was the most important thing in the pape
It was not, of course, an absolutely new fact that Ini
Jones was working in the vernacular manner after his Pall
dian outbreak. About this period there was enough inform
tion available, provided they could get a fresh intelligence
play upon it. It gave something of a shock, however,
realise that Inigo Jones was doing traditional work and w
doing it in an efficient way long after his Palladian wo
was supposed to have put everything in the backgroun
He could not help feeling that if buildings were studied
the terms of the people who lived in them they would have
better understanding of both them and the occupants ther
selves.

Mr. W. Curtis Green, in seconding the vote, said that th
had had a most extraordinarily interesting paper, one whi
covered a great deal of ground and touched on a great ma
problems. Mr. Bolton was a most wonderful man—a so
of walking encyclopædia, full not only of architectur
history, but also of anecdote. He was an ideal student w
did not think too much of the superficial aspect of the thin
but got at it on every side. Mr. Bolton had, in fact, a sen
of architectonics—if he might say so in default of a bett
word. In his paper he had rightly tried to minimise the i
portance which ornament usually took. Often ornament on
concealed architecture, and they therefore wanted to get
the buildings themselves and the idea behind them. Th
could only do that by studying fine architecture, whether o
or new. Mr. Bolton had rather surprised him by not goi
further into the question of a comparison between Ini
Jones's work and that of François Ier., and by not drawi
some analogy between them. Personally, he (the speake
would like to suggest that some English work of the Jacobe
period was very comparable to the François Ier. They h
been lately told that a cool and critical study of the Fren
buildings would show that they were not consummate wor
of art, but rather the efforts of beginners. The use of su
a paper as Mr. Bolton's was to suggest how old work shou
be studied and to encourage them to soak themselves in
He himself would suggest that attention should be conce
trated on one great period, or on one group of buildin
so that the student might thoroughly grasp one great peri
of design, and begin to realise where the inspiration ca
from and also to realise that present-day architects m
look for inspiration to their own time, and to the peo
for whom and with whom one worked.

Mr. E. S. Yates asked if Mr. Bolton had come across a
painted work of the Jacobean period, as some years ago
past president of the Association had applied to him for
formation on that point, and he had been unable to sup
it. Mr. Phenè Spiers had said that he did not know of a
either. Of course a hundred years before there had been
lot of such work in the church screens of Norfolk and Suffo
but the art seems then to have died out. He wished to kn
why it seemed to have disappeared after being brought
such great perfection.

Mr. Weaver said he would like to mention in connecti
with the point just raised that there was a very interesti
and astonishing ceiling to the gallery at Pinkie Hou
Musselburgh (1613), a house built by Lord Chancellor Du
fermline. Scotsmen would not accept it as other than
English house mainly because of that ceiling.

Mr. C. H. M. Mileham remarked that the Jacobe
period was one of the greatest importance, because it was
in which the individual man comes forward almost for
first time, and it was the first time when architecture refle
the life of the village as well as of the monastery. That w
to say, the human element now began to enter largely i
architecture. They had to thank Mr. Bolton for putting
paper before them with such excellent slides.

Mr. A. Oliver inquired if Mr. Bolton had come across
money accounts of Jacobean buildings. In the Record Of
there was the original bill for Whitehall.

Mr. Louis Ambler said that Mr. Bolton was a mass
information and erudition. One of the questions he sho
like to ask was as to the exact date of Moyn's Park, for
whole design had appeared to him to be Tudor rather th
Jacobean. Mr. Bolton had stated that "all of them co
distinguish between Elizabethan and Jacobean work"—p
sonally he had to confess that he could not easily do
It was largely a question of locality. In the north the Eli
bethan style as they knew it did not develop in the same ea
period as in the southern counties. Again, Hardwick H

built about 1590-7, was, as Mr. Bolton had very truly said, extremely like Hatfield, except that it had no wings; but Hatfield was built twenty years later. He had been hoping that Mr. Bolton would mention the names of more architects of the period. No mention was made, for example, about the well-known Smithsons of the Midlands, of whom there were three generations. The first was Robert Smithson (1534-1614), described on his monument as architect and surveyor to the Wollaton family. Then came his son John, who commenced Bolsover Castle and was buried in the local church. Finally came his son Huntingdon Smithson, who continued the work there and did much else.

Mr. Gerald C. Horsley, in closing the discussion, said that Mr. Bolton had put before them a picture of that fascinating period of architecture when it was emerging from the mediæval times to a period of which the world knew a great deal more. It would be most interesting and profitable to have a complete list of Jacobean architects, such as Mr. Ambler had suggested, so that they might ascribe the different great works to their authors.

Mr. A. T. Bolton, in replying, said that as regards the proposed list of architects, he was afraid that at the present time its compilation was almost hopeless. He had a lot of names, but he could get no further as to biographical details. The main points of such careers were only dug up by chance. It had been suggested that someone should search for twenty years in Somerset House for Thorpe's will. The Civil War was responsible in a great measure for that lack of information. The registers of St. Catherine Cree which have disappeared were probably commandeered by order, to obtain evidence against Laud, and were never restored. It was difficult to realise the enormous gap which the Civil War caused. Some of the best facts about Inigo Jones were obtained after the war from scattered recollections of him. All the accounts of Hatfield are known, as also those of Wadham, which are given by Mr. Jackson in his book. It was difficult to see how architecture could be properly studied without reference to the prevailing political questions. Without such knowledge it was impossible, for example, to understand how the designs for Whitehall came to be made, and how they were not carried out. Ignorance as to history would not do for a study of the works of the Renaissance at any rate. It was very doubtful whether Smithson did any work at Wollaton. There seemed very good reason to believe that John Thorpe at any rate made the designs; Smithson may simply have carried them out. It was certainly possible to distinguish between the work of Jones and Thorpe. In different localities Jacobean work undoubtedly varied. A ceiling introduced into Holland House, for example, looked absurd, as it was a piece of provincial Jacobean work.

Mr. Louis Ambler has sent us the following in amplification of his remarks at the meeting:—

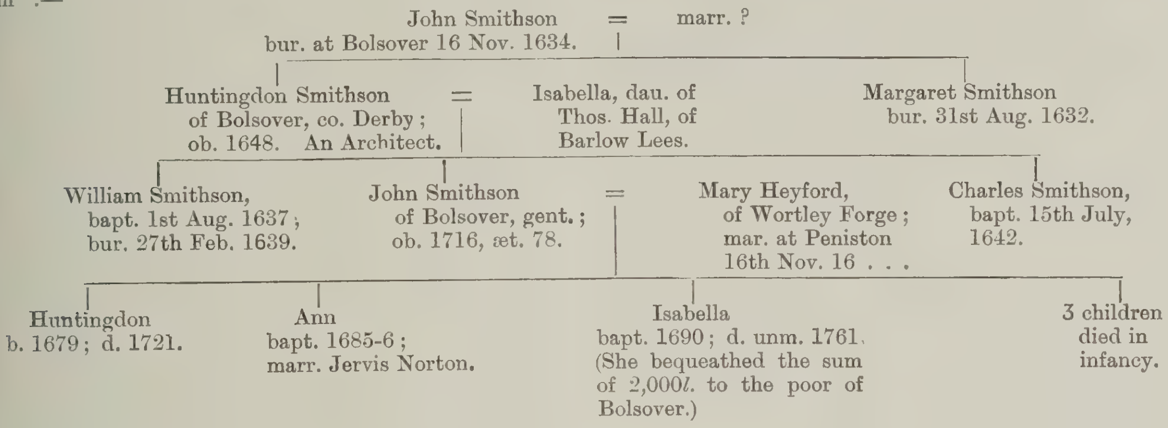
My authorities for the particulars of the three generations of Smithsons, architects in the reigns of Elizabeth, James I., and Charles I., are the following:—

(1) The inscription on Robert Smythson's tombstone in Wollaton Church, Notts:—

Here lyeth y^e body of Mr.
Robert Smythson, gent.
Architector and Survay-
or unto the most worthy
House of Wollaton with
diverse others of great
account, he lived in y^e fayth
of Christ 79 years and then
departed this life y^e XV^{th}
of October Año Dñi 1614.

N.B.—In those days "i" and "y" were used almost indiscriminately, the same person's name being sometimes spelt with an "i" and again with a "y."

(2) The pedigree of the Smithson family in the Harleian Society's publications, vols. 39 and 40, "Familiæ minorum gentium":—



John Smithson = marr. ?
bur. at Bolsover 16 Nov. 1634.

Huntingdon Smithson = Isabella, dau. of
of Bolsover, co. Derby; Thos. Hall, of
ob. 1648. An Architect. Barlow Lees.

Margaret Smithson
bur. 31st Aug. 1632.

William Smithson,
bapt. 1st Aug. 1637;
bur. 27th Feb. 1639.

John Smithson = Mary Heyford,
of Bolsover, gent.; of Wortley Forge;
ob. 1716, æt. 78. mar. at Peniston
16th Nov. 16 . . .

Charles Smithson,
bapt. 15th July,
1642.

Huntingdon
b. 1679; d. 1721.

Ann
bapt. 1685-6;
marr. Jervis Norton.

Isabella
bapt. 1690; d. unm. 1761.
(She bequeathed the sum
of 2,000*l.* to the poor of
Bolsover.)

3 children
died in
infancy.

(3) Horace Walpole's "Anecdotes of Painters in England," third edition, 1782:—"John Smithson was an architect in the service of the Earls of Newcastle. He built part of Welbeck in 1604, the riding house there in 1623,* and the stables in 1625; and when William Cavendish, Earl and afterwards Duke of Newcastle, proposed to repair and make great additions to Bolsover Castle, Smithson, it is said, was sent to Italy to collect designs."

(4) The collection of Smithson drawings belonging to Colonel Coke, of Brookhill Hall, including some plans of Bolsover, Welbeck, Worksop Manor, Clifton, Wollaton, and other houses in Nottinghamshire, many of them signed or initialled "J. S." (John Smithson).

(5) The inscription on Huntingdon Smithson's tombstone in Bolsover Church, viz.:—

Reader beneath this plain stone buried (lie)
Smithson's remainder of mortality
Whose skill in architecture did deserve
A fairer tombe his mem'ry to preserve
But since his nobler gifts of piety
To God, to men justice and charity
Are gone to heaven a building to prepare
Not made with hands, his friends contented are
He here shall rest in hope till th' world shall burn
And intermingle ashes with his urn.
Huntingdon Smithson
Gent.
Obiit IXbris 27, 1648.

(6) Walpole confuses John and Huntingdon Smithson, father and son, to some extent, saying that the former died in 1648 and "his son, a man of some skill in architecture, was buried in the same grave," whereas John Smithson was buried November 16, 1634. Samuel Pegge, the antiquary, in his letter describing Bolsover Castle addressed to the Duke of Portland, September 26, 1785, says that Huntingdon Smithson, who was living at Bolsover in 1601, was its architect. Most probably he was associated with his father in the work begun by Elizabeth, Countess of Shrewsbury ("Bess of Hardwick"), shortly before her death in 1607, and continued by her second son, Sir Charles Cavendish, and completed by him in 1616. This was the rebuilding of the main structure on the old foundations, and the external pavilions. Sir Charles died in 1617, and his son William (afterwards Earl, Marquis and Duke of Newcastle) built the detached pile now in ruins. On a stone in the building

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* As appears by his name over the gate.

is engraved, "H. S. 1629," no doubt referring to Huntingdon Smithson, the architect.

For (2), (3), and (6) I am indebted to some notes by Mr. Walter L. Spiers in vol. 16, third series, R.I.B.A. Journal, and for (4) to Mr. J. Alfred Gotch's paper in the same volume.

The Architectural Association held their annual conversazione at 18 Tufton Street, Westminster, S.W., on Thursday, November 23. The members and the large number of guests were received by Mr. Gerald C. Horsley, the president, and Mrs. Horsley, on the first floor. The galleries had been tastefully decorated for the occasion. Round the walls of the first-floor gallery there was an exhibition of photographs and sketches by members of the Camera Sketch and Debate Club. In the room adjoining it there was an interesting display of jewellery, enamels, silver and repoussé work, bronzes, pewter work, tapestries, and art metal work, together with drawings by Messrs. W. S. George, Charles Gascoyne, Philip Hepworth, W. J. Palmer Jones, W. Walcot, and H. F. Waring. At one end of the room there was an exhibition of designs and four models for stage scenes lent by Mr. Edward Gordon Craig. During the evening a programme of instrumental music was gone through by Pitman's Blue Imperial Orchestra.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

EXAMINATIONS of candidates for the offices of district surveyor under the London Building Act, and of building surveyor under local authorities, held by the Institute pursuant to statute, took place on the 26th and 27th ult. Of the ten candidates admitted, the following three passed, and will be granted by the Council certificates of competency to act as district surveyors in London, viz.: Roland Reginald Seymour Andrews, of 103 Bow Road, Bow, E.; Joseph Edward Mundell, A.R.I.B.A., 157 Wool Exchange, Coleman Street, E.C.; and Herbert Henry Young, 11 Tankerville Road, Streatham, S.W.

At the general meeting (business) of the Royal Institute next Monday there will be on view the "Arthur Cates Collection," an important collection of photographs of buildings in Italy, Greece, &c., recently presented to the Institute by Mrs. Cates. At this meeting there will be put up for election five Fellows and fifty-six Associates, as well as the following two Hon. Associates, viz.: Mr. Walter Crane, R.W.S., and Mr. J. H. Marshall, M.A., C.I.E., Director-General of Archæology in India.

ENGLISH MEDIÆVAL ARCHITECTURE.—VII.

HAVING dealt in his preceding lecture of the course now being delivered at University College, Gower Street, W.C., with the broad aspects of the Early English extension of style, Mr. Edward S. Prior, F.S.A., F.R.I.B.A., in his seventh lecture dealt with the technical constructive advances.

In apportioning a certain distinctiveness of style to the four districts of Transitional Gothic (viz. "Northern," "Western," "Eastern," and "South-eastern"), Mr. Prior had touched on a difference in their vaulting. He mentioned the aisled chapter-house of the Northern Cistercian—vaulted with ribs of similar section for transverse and diagonal arches, so producing a system of uniform ribbed ceilings with rubble filling—well illustrated in the Fountains undercroft. Then in the west had arisen the circular chapter-house vaulted from a central pillar, as in the Worcester method; here again may be seen the expression of a level uniform encircling ribbed ceiling. In the east, in the home of Anglo-Norman monastic style, the Romanesque oblong vaultings held sway—heavily ribbed, but still as at Durham managing the same uniform ceiling effect. Finally, in south-east England were the Continental vault dispositions which at Canterbury were still making thick transverse arches, and a ceiling lifted or domed by the rising of the diagonal ribs between. But immediately following at Chichester and Boxgrove this Continental doming style was discarded for the same level uniform extension seen elsewhere.

The tie-beams of the wood roof above the vault in England were the mastering condition of its development. Their action is to be seen at Chichester—the arched ribs are depressed so as to get them under the tie-beams, and they can be seen to be distinctly four-centred instead of regular curves. This was an anticipation of a peculiarity in arches which some 150 years later occurred generally and for the same purpose—*i.e.* not appearance but for building convenience. At Chichester, too, may be observed the conditions introduced by the circular-planned abacus of the marble style, by which the vault ribs spring evenly from it and have all to start at the same curve and tend towards fan-shaped springers. These springers were taken up in level courses to some four feet above the actual springings of the ribs so as to save costly wood centreing. When these first courses had been taken as high as possible before curving they were left until the carpenters had put the wood roof with its tie-beams. Then with this roof overhead it was easy to finish the vault, having plenty of abutments and strength to set the centres. This method crippled the arch ribs, because in order to get the diagonal and transverse ribs to the proper places to meet they had to be doctored in plan as in rise, and became four-centred.

Other solutions were also available. In sexpartite vaulting, at the meeting of the diagonals in each square bay, two extra arches are brought up from the intermediate pier making instead of the four webs between the ribs of the quadripartite vault six webs. This expedient strengthened and strutted the weakest point and so cut up the web as to make heavy centreing superfluous. In the east of England the oblong bays were in the practice of traditional Benedictine setting out. At Lincoln there was between 1200 and 1240 a whole series of vault experiments founded on this tradition, and proceeding to the development of the many ribbed Early English vault. The first point to notice in these is the introduction of the mid-rib carried along the crown of the vault. This rib strengthened the weak part a the meeting of the ribs and ministered to a peculiar development of English style—viz. the carving of vault bosses. Th subsequent course of the English vault method was a continual development of these extra ribs or liernes and of th bosses at their intersections. In addition to this strengthening, the extra rib obviated the break in direction of th diagonal rib; also it gave a greater curvature for th diagonal ribs, and finally it further lessened the spaces o web filling between them. Another expedient was th "ploughshare" treatment of the web at its haunches so a to raise it above the side wall of arches and to allow greate height for the window.

In the progress of Early English vaulting methods wer absorbed from the whole body of Transitional work. It di not emanate from one source as a settled invention that coul be passed on and adopted wholesale. It discovered no fixe method, but took ideas from all sides and made experiment in each case determining the expediency of its own effort The "Reformed" building of the Northern and Wester chapter-houses contributed its share to these experiments— just as the vigorous Benedictine uses of the eastern abbey in oblong rib-vaulting, and just as the square-planned Continental types of the south-eastern school. The result wa that the insular or native style of English Gothic is a marked in Early English vaults as it was in the Earl English marble shaft and in the window.

The conditions of construction in "marble" and "white stone" worked to shape the Early English window. In Transitional building the pointed arch was wanted as a necessit of vaulting, and so the pointed window or lancet becam immediately necessary to fit economically in the bay. Ju the same simple necessities were at hand to produce tracery The important factor in the development of separately arche windows into a single traceried one lay in the question not the glass that filled the window, but of the wall in whic the window was a void. That wall had to be lightene rather than the glass to be enlarged—this applied especiall to the side walls, whether of aisle or clerestory. Romanesqu construction had aimed at putting a round-headed windo broad as possible in each bay of aisle or clerestory. Gla being costly and difficult to fix in too large stretches, ver wide lights seemed forbidden to mediæval construction by th expediency of building. Accordingly the first effort to redu the wall proposed, instead of a single opening, a double; i Transitional style such double windows came into use f aisles very frequently. At the outset, the double windo had two internal arches, one for each light. In order to out of the way of the vaulting wall-arch these double interna arches were best drawn together so as to become an arcad with a single shaft, and it was a clear convenience when on internal arch included the arches of the two glass opening But long before glazed lancets got their tracery the principl of arch development were in adoption for the unglaze openings.

But apart from external openings, the common practic of arcades which split up and economised the substance the wall had experimented with the same lesson of piercin the spandrel. In the triforium the idea of tracery begin with pierced circles in the spandrels. The enlargement hese can be traced on with an increasing use of foiled openngs. The idea of tracery spandrels once conceived, the idea f making wall surface all arches grew apace. The whole rea of the fabric would be mapped out into series of double ighted traceried arcades, used as windows and glazed, or as penings as occasion required.

It is clear how the three-light clerestory window grew ut of the internal arcade that made a clerestory passage in he vault in Anglo-Norman building. The influence of Purbeck marble made this internal arcade still more slender. Triple arcades for the clerestory internally are a special eature of the south-eastern masoncraft of Purbeck marble and Caen stone. Moreover, just as in the double-arched triforium o in the triple triforium, whose arches are contained under ne retaining arch, the spandrels have the quatrefoil and refoils which develop into tracery. By a similar transfernce the triple window, too, gets the complete attenuation of ts substance and becomes the three-light traceried window.

In gable ends the experiments had aimed at once at the eduction of wall-substances by multiplying arched lights nd arranging them together. In the Transitional buildings we find groupings of these windows in a gable-end, with the entral light rising above the flanking lights, so as to reduce he high and wide wall body ; but at first little extra reducion was obtained out of the internal arches. For a long ime Early English style was content with various arrangements of lancets—either making them very lofty or putting hem in tiers and graduating the top tier to the gable. In hese later experiments the treatments of the gable-end ranch in two directions : one acknowledges the three contructional storeys of the side walls, the other disregards them nd treats the gable-end as a single piece of wall. In the rst the tendency is to reproduce just the developments of he side windows ; in the second, progress towards a further evelopment was rapid.

Besides the lancets, there was another motive in the evelopment of end-wall tracery. The square-ended gables f Transitional building, especially in southern style, have circular or shaped window inserted above the lancets, and his in its growth became as efficient a factor in the reducion of wall-body as were lancets themselves. The constant nlargement of the circle goes on until it is directly upon he heads of the lancets, and finally it is brought into direct onnection with them under one arch, being absorbed into the cheme of the window in the same way as had been the refoils and quatrefoils of the triforium. Also, however, t preserved an identity of its own as a round window.

Briefly then window tracery developed from four experiments: first, the aisle or two-light development which got ts tracery out of the internal wall arcade that had been the ere-arches of the window ; secondly, the clerestory or threeight window was similarly affected by the internal triple rcade, whose origin goes back to the Norman passage along he clerestory ; thirdly, the end-wall of nave and choir experimented—first with various arrays of graduated lancets, n the same way as the clerestory windows, but for a wider ffect ; fourthly, the end walls of transept specially introduced and developed the circular windows ranged above a ow of lancets.

ROYAL SCOTTISH SOCIETY OF ARTS.

AT a meeting of the Royal Scottish Society of Arts, Edinburgh, held on November 27, a paper was read on the ubject of ventilation by Captain Geo. A. Chaddock, the patentee of the well-known Chaddock mechanical windows, which have been adopted in many public institutions.

Captain Chaddock, in prefacing his scientific explanaions, said that the advocates of natural ventilation did not appear to realise the importance of even heat distribution, as well as air distribution. He contended that when cold air enters a room it should be regarded as matter seeking warmth, which scientific research showed it would have at any cost. Therefore, unless temperature matter in the form of artificial heat was immediately available, the cold air would gather heat by robbing the inmates, which it did to heir intense discomfort. The first consideration is temperature or even heat, as well as air distribution, in conformity with nature's principles ruling in our oceans of air and water.

The lecturer next entered upon a scientific description of the properties of natural heat, and of the natural laws which regulated its equable distribution with the air. He went on to show that perfect ventilation of apartments could only be attained by adopting as the master key a mechanical application of these natural laws. Details were then given of many interesting experiments which had been carried out by the lecturer before different public and scientific bodies, the results of which were accepted as showing that the usual methods of ventilation were frequently unhealthy and dangerous.

Captain Chaddock explained technically the method of ventilation which is adopted in the House of Commons, which is known as the "upward theory" ; warm air being forced up through gratings, and thereafter rising vertically it is drawn out by an extraction fan. The inmates of the House are thus subjected to the danger of breathing matter ejected by each others' exhalations, quite irrespective of the foreign matter brought in on their boots.

The lecturer gave an account of the effects which had been realised in many public schools and institutions from the adoption of the mechanical windows installed by the Chaddock Ventilation Company. Illustrations and diagrams relating thereto were shown, the principle of the system being to produce a continuous and equable mingling of the fresh air with the artificial heat supplied, thus eliminating draughts, and maintaining a standard of purity equal to that of the actual open air, though regulated, of course, to any desirable temperature.

On the important question of ventilation in regard to schools, Captain Chaddock's demonstrations before various authorities have led to a widespread crusade of reform, and his contention is that if air is allowed to move on the line of least resistance it can only do so by passing out of a classroom into a central hall or corridors, thus polluting other portions of a building. The great bulk of schools in England are, he said, thus contaminated, and for this reason the Board of Education are now prohibiting central halls. The system of air moving on the line of least resistance was thus not only dangerous as a means of circulating impurities, but it tended to the maximum of discomfort, in setting up draughts and irregularities of temperature, and had, therefore, been a principal reason for the introduction of artificial systems. In contrast to this, if the rotary air movement was adopted, outlets and inlets being on the same side of the classroom, the air would pass out on the side on which it entered, therefore on the line of greatest resistance, thus ensuring a steady even movement, and thereby eliminating draughts and irregularities of temperature. This procedure, he said, admits of open air treatment all the year round, and as the system necessitates complete isolation of classrooms, it spelled for the general health of those in the building; also excluding noise from other rooms, instruction can be carried on to advantage.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

(Concluded from last week.)

CONTINUING his Presidential address at Leeds on the 16th ult. Mr. Sydney D. Kitson said it must be admitted that in artistic matters Leeds has not progressed during the past year. The starving of the Art Gallery, the suppression of its curatorship, and the abolition of municipal concerts may save a few hundreds to the rates, but one is tempted to think that they are economies bought at too dear a price. All who care for the few remaining buildings of an older Leeds will deeply regret the drastic treatment at present being portioned out to Red Hall. As usual, the literary gentlemen have not spared us. In an ode to the statue of the Black Prince the poet of *Punch* alludes to Leeds as "a haunt of misery and gloom" ; while a sonnet in the *Spectator* had some hard things to say on the ugliness of Leeds. In a recently published guide-book to the West Riding I find the following choice passage :—"It is questionable whether any other city—except, perhaps, Sheffield—displays to the railway traveller such a scene of smoky hideousness as is offered to those who, descending from the Bramhope tunnel, and having left only a few minutes behind them the green and open valley of the Wharfe, look out towards the east along the filthy river Aire from the summit of the viaduct which crosses the Kirkstall Road." These extracts do not make pleasant reading, but it is as well sometimes to see ourselves as others see us. It is inevitable that the stranger who approaches Leeds expecting to find it a Vienna or a Paris should be disappointed. Nor has the claim yet been made for the city that it is a health or pleasure resort. But it is a great manufacturing centre where nearly half a million people live and work probably as hard as in any other town in the world. And by reason of the strenuousness of their lives sunshine and pure air should be all the more necessary to their existence. Only recently a professor, speaking in Sheffield, told his audience that smoke was essential for the production of the best steel. But surely, as Mr. Gladstone once said with reference to another matter, in a place not a hundred yards from where we now are, "the resources of civilisation are not yet exhausted." And it is difficult to believe that science could not produce the best steel by a more cleanly method if it was made worth the while of science to do so. People have grown so used to what is really a reproach to our civilisation, or they are so busy making money, that they have come to regard our smoke-laden atmosphere with regret certainly, but with resignation. The architect suffers from this nuisance perhaps more than any other member of the community, for the public are disinclined to put up good buildings when they know that they will be shrouded in soot within a year after erection. Recently a miniature "White City" has been growing up at the bottom of East Parade, built of a white terracotta of local manufacture, which has done much to brighten the neighbourhood. But this material is, after all, only a palliative whose use would never have been thought of but for the present atmospheric conditions of our big towns.

Town-planning in our province has not yet passed out of the region of talk into that of practical politics. A very generally expressed desire has been, however, shown that the new colliery districts so rapidly growing up round Doncaster should be something better than the sordid mining villages to which we are accustomed. The Archbishop of York said the other day that now our municipalities had great opportunities put into their hands, and he believed that had there been more care and desire in the past to check individual enterprises by the common good they would have been able to present to the world something that was not only stimulating but something more beautiful and healthy than those amorphous streets which crawled up and down like ugly insects in the manufacturing districts of Yorkshire.

In Halifax a competition, with prizes given by the local Member, has been held for the best plan for improving the laying out both of the town and suburbs. It is much to be desired that a similar competition should be held in Leeds. There seems an opportunity now, when additional municipal accommodation is so urgently needed, and when the Infirmary is embarked upon an extension scheme, that the approaches to the Town Hall—which stands in its inky cloak as a sort of Hamlet among the buildings of the world, bemused by its own surroundings—should be widened and improved. No street alteration of any kind has taken place here since the Town Hall was built, and surely it is high time that the setting to the fabric which our forebears wrought so well should be taken in hand.

There is now the chance for the correlation of some of the more important of our public buildings. The obvious truth cannot be too often repeated that one fine building does not make a fine city, but the wise grouping together of fine buildings not only doubles the value of those buildings themselves but also provides the only elements out of which a stately city is made. In an interesting address which the City Engineer, Mr. Lancashire, read to the Association of Municipal Engineers last summer, upon the development of Leeds, he said, "Although recent improvements have resulted in the possession of many streets and buildings of which Leeds is justly proud, it cannot be argued that reconstruction is as satisfactory as construction properly planned in the first instance, even apart from the extremely heavy extra cost. One is bound to realise that, in some cases, there has been no design beyond street widening for better travelling facilities, no motive beyond the wider streets and the better buildings which have followed the widenings, and some of the fine new buildings have been erected where it is impossible to appreciate properly the full beauty of the architect's creation."

Now that the population of Leeds has become steady and almost stationary, and now that it is no longer needful that the owner of agricultural land at some remote distance from the city should display a notice-board calling attention to his "ripe building land," the opportunity arises for a general tidying up in our suburbs. There is no longer any reason why they should resemble a miners' camp or a navvies' settlement—all barbed wire and empty tins. Because every plot in a suburban road is not built upon it seems hard on the unfortunate people who are there that their roads should be entirely unmade and often impassable. Even now, by the exercise of some thought and by the co-operation of adjoining owners, the suburbs might be opened out from the blind-alley condition in which they have so often grown up.

Probably the most important building enterprise in this
neighbourhood at the present time is the City of Le
Training College and its fleet of attendant hostels. Th
every care has been taken with the disposition and groupi
of the various buildings, and this forethought will, I thi
result in an interesting and satisfactory lay-out. There
every chance, too, that the suburb which will grow up arou
it will be carefully and effectively planned.

For the first time there is a Lord Mayor of Leeds who
connected with the building trades, and we may rest assu
that Mr. Nicholson, who is an honorary member of
Society, will do what he can to promote its best intere
during his term of office.

I hope that members will attend the lectures well dur
the coming session. They form a varied and attractive l
and the best way to show appreciation of the trouble a
kindness involved by the various lecturers is to turn up w
and to join in the discussion afterwards.

Now nothing remains but to wish you a pleasant a
prosperous year. The happiest life that a man can lead
an architect's life, if his interests and sympathies lie t
way. And, I would add, the happiest architects are the p
vincial architects, for they usually have a greater range a
variety in their work, and have more varied lay intere
than is possible to Londoners. And, to crown all, they h
the open country at their back with all that it means t
man's health and spirits. Nor does it seem needful now t
a traditional style is once more beginning to emerge from
chaos of clever electicism, and now that opportunities
study are so much greater, that the design of provincial arc
tects should be measurably inferior to that of their Lond
brethren.

Professor Blomfield, indeed, in his history of Engl
Renaissance architecture, spoke of "the technical inferior
in design which has to some extent characterised the w
of provincial architects since the eighteenth century." Ye
the ten best designs which he, as assessor in the recent M
chester Art Gallery competition, selected, seven, if I mist
not, were the work of provincial architects. And one of
selected ten designs was by the treasurer of this Soci
This occurred, mind you, in a competition calling for
highest qualities in monumental planning and design.

So, although it is quite certain that we cannot al
men of genius, we can, at any rate, see to it that our bu
ings shall fulfil the sound and common-sense requireme
of Inigo Jones, and be "solid, masculine, and unaffecte
We can put the best that is in us into our work, play
game, and mind our own business, and thus ensure happi
not only to ourselves but to those who come in contact w
us.

The Lord Mayor proposed a vote of thanks in a very
speech in which he remarked upon the necessity for the d
lopment of the city upon more broad and architectural li
It was as easy, he said, to build well designed building
to build "mere structures."

Mr. J. W. Connon seconded the resolution, which
carried unanimously.

A very successful entertainment, arranged by Mr. E
Spruce, followed.

MANCHESTER SOCIETY OF ARCHITEC

ON Wednesday, November 22, Mr. P. Abercrombie, of
Liverpool School of Town Planning, gave a lectur
"The Contrasted Development of Paris and Vienna."

Speaking of Vienna first, he gave plans showing the
velopment from the mediæval town which still remains in
centre.

He explained how the old line of fortification was ada
to form the Ringstrasse, and how in laying out this s
open spaces were arranged opposite to and between t
public buildings.

With maps of the district he showed the open bel
country, well wooded and picturesque, which surrounds
town and which is to be left unbuilt upon for ever.

The factories were placed on the south-east of the t
the prevailing north-west wind thus carrying away the sm

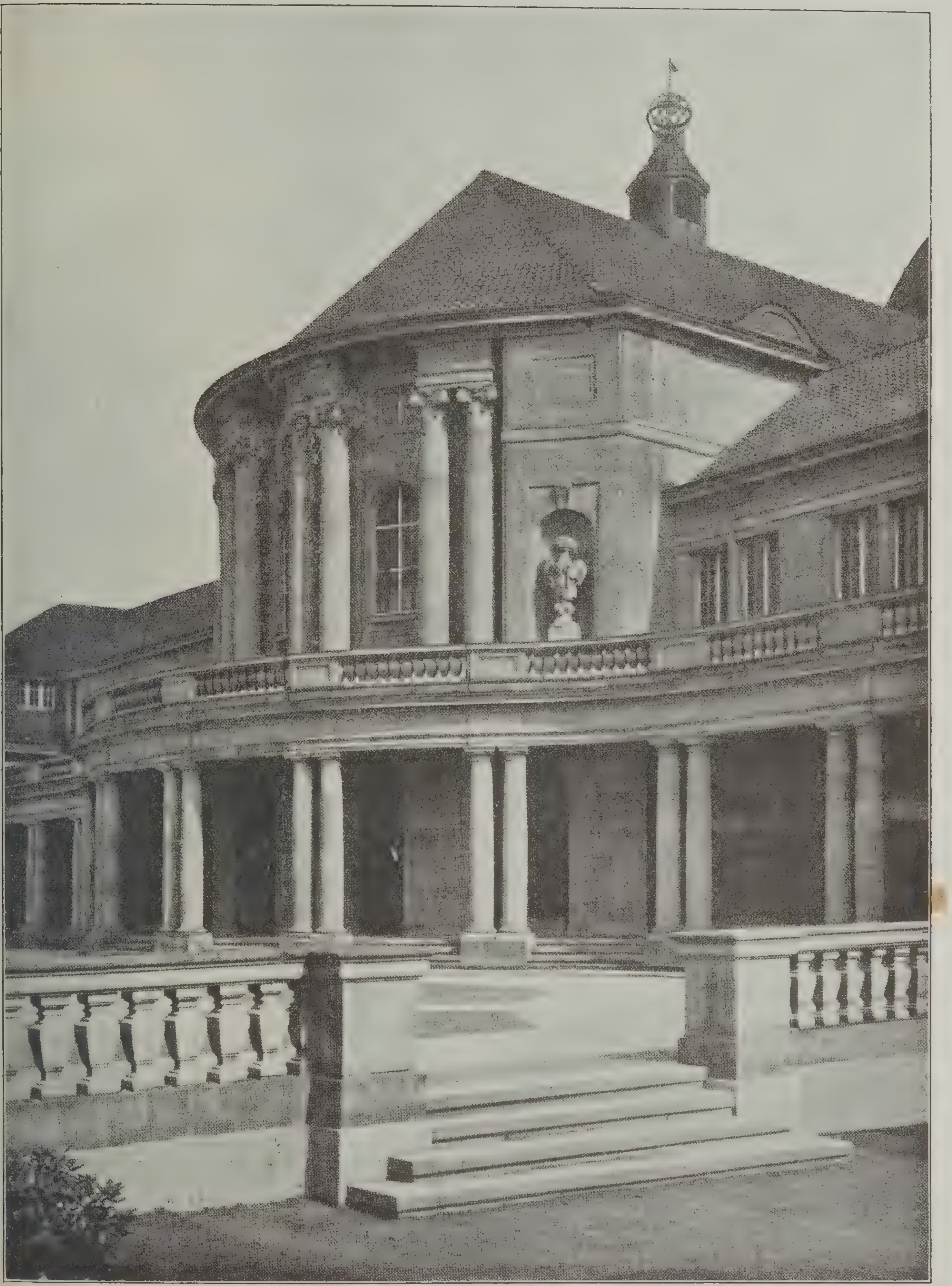
Turning to Paris, the Roman cross-roads had for
the basis of the modern town. In all the modern imp
ments both of Napoleon and Haussmann the vista had
the principal motive. In obtaining this the indivi
buildings were of necessity subservient to the general l
and in this way Paris had always been more fortunate
Vienna.

Mr. Abercrombie had many excellent slides of the bu
ings and streets.

A discussion followed, in which Messrs. Barker, A
Worthington, Corbet, and others joined.

MODERN EUROPEAN ARCHITECTURE.

GERMANY.



[From *Deutsche Bauzeitung.*

LECTURE ROOMS BUILDING, HAMBURG.—Herren H. Distel & A. Grubitz, Architects.

LECTURES ON HEATING AND VENTILATION AT UNIVERSITY COLLEGE, LONDON.

THE fifth of a course of six public lectures on "The Real Nature of the Problems in Heating and Ventilation Awaiting Solution by the Engineer," by Mr. Arthur H. Barker, B.A., B.Sc., was delivered on Tuesday, November 14. In the previous lecture he had dealt with the possibility of utilising waste industrial heat for domestic purposes, and had considered briefly the commercial aspect of the idea. The problem, however, of economy in fuel consumption as at present used is largely one for the architect and builder to solve, inasmuch as they are responsible for the design and construction of the buildings to be warmed. The maintaining of a given temperature in a room depends upon the various factors which contribute to loss of heat, and many of these factors are themselves dependent upon the quality and nature of the construction of a building. A large variation of temperature, to the extent of 5° or 6°, is caused by the conductivity of brick or stone walls when built solid, stone being the better conductor of the two. The greater the exposed surface of wall or roof, the greater the leakage of heat and the greater the expenditure of fuel required to maintain the required temperature within the room or building.

The prevailing conditions outside, such as wind and rain, also have their effect on the inner temperature of our dwellings, and we must, in consequence, consider to what extent the particular house under consideration is exposed to, or sheltered from, the elements.

It is known that heat passes more readily when the humidity of the air is higher, and that the rate of transference is increased by the use of a fan to the extent of 50 per cent. All these factors served to make the problem one of extreme complication, and at present there is no means of estimating the extent to which this loss goes on. The causes are out of control of the engineer, and, as hinted above, lie more within the province of the architect.

The construction of the wall, whether it consists of one or more materials, and the mode of building it, both have much to do with the possibility of solving the difficulty.

As regards the mode of building walls, he suggested a 9-inch outer wall, and 4½-inch cavity, and a 4½-inch inner wall, which method would prevent a large amount of heat transference. Care must be taken, however, that this idea did not defeat its own object. A relative of the speaker had adopted such a suggestion in order to secure walls that would remain perfectly dry, but the fixing of gratings at intervals to further this object had converted the cavity into what was practically an upcast flue, and the resulting free circulation of air had rendered the house so cold in winter as to be almost uninhabitable. This was cured on the ventilation gratings being closed, thus demonstrating that, as far as heat economy was concerned, the space between the walls must be air-tight or have no direct communication with the outer air. Could this be done without sacrificing dryness—in itself an essential and important in its effect on the temperature of the house—inasmuch as a damp wall possessed extra conductivity? Plaster has little effect on the heat transference—seeing that its composition is much the same as that of the wall it covers—beyond adding an extra inch or so to the thickness of the wall. Some benefit might be derived by the introduction of a non-conducting plaster, for it has been shown that wood linings contribute largely to the maintenance of warmth in a room. In fact, any device that will tend to lessen the conductivity of walls, and so increase the temperature of their inner surfaces, will go to the root of the whole problem.

Considering that the co-efficients used in practice are known to be in error, it is time that efforts were made to test, by careful and exhaustive experiments, the extent to which temperature and air changes occur. A number of rooms in different parts of the country should be taken, their exposed surfaces in walls, ceilings, and floors calculated, and account taken by means of an automatic machine such as he had devised of the amount of heat required to maintain a given temperature over a long period. Air interchanges should be tested by Haldane's methods, and in every case careful note should be made of the prevailing weather conditions during the experiments. The cost of a machine such as he mentioned would be considerable, but the present methods of making calculations for heating installations showed how very necessary it was that some satisfactory figures should be available upon which such calculations could be based. Architects to-day hand the matter over to the heating engineers, merely requiring a given temperature in their buildings, and the tenders are sent in with no knowledge of the conditions which will vitally affect the efficiency of the plants provided. It is this fact that is responsible for the enormously disproportionate variations in price which are always occurring.

The number of thermal units to be supplied to each room should be specified, with the heating surface and temperature. Reverting to the economy of fuel, the problem for the heating engineer to-day is how to cheapen the cost of burning fuel under present principles. First of all the consumer pays 21*s*. per ton for good coal or coke, when cheaper fuel, in the way of engine slack or coke breeze is available; and, secondly, where such cheaper fuel is used much of its energy is wasted because he does not know how to burn it properly. To thoroughly burn the fuel every particle or molecule of volatile matter, which ordinarily passes up the chimney in the form of black smoke, must come into contact with oxygen at a sufficient temperature to burn it. Experiments have been made in Germany with finely-ground coal-dust, which was blown into the furnace, it thus being already mixed with the necessary oxygen. These experiments had proved entirely successful scientifically, but commercially the scheme was at present impossible, the expense of the process being prohibitive.

The heating engineer should apply himself to the solution of these problems, to the invention of an inexpensive furnace service which will ensure the complete combustion of every particle of fuel, to the use of inferior fuels and economical production of power therefrom, and to the utili tion of the waste flue-gases. There are certain possibilit in the utilisation of waste heat by using it in some way reheat return water from pipes and radiators, and by su means as this we might someday be able to use as much 95 per cent. of the energy in our fuel.

OUR CONTEMPORARIES FROM OVERSEA

The *American Architect* (New York) contains illustrati of some of the work of Mr. A. W. Longfellow, in State of Massachusetts; the Army and Navy Club, Wa ington, by Messrs. Hornblower & Marshall; a pictures country house by Messrs. James E. Ware & Son, and one "colonial" type by Mr. Arthur B. Heaton.

Der Architekt (Vienna) has quite a domestic number w illustrations of houses, single and in flats, in Vienna, an design for an architect's house in the Wagnerian manner.

Construction (Toronto) makes its chief feature "Domestic architecture as illustrated in suburbs a country," which, with an ample number of views and pla shows the creditable position to which architects in Cana have attained in the domain of domestic architecture.

La Construction Moderne (Paris) illustrates a n chapel added to the château of Chalo-Saint Mars, n Etampes, the architects of which, Messrs. Julien Barbier Mehu, have well interpreted the spirit of French flamboya work. A "maison à loyers," by Mons. Agati, at the cor of the rue Vaneau and rue Oudinot, Paris, is a good exam of modern Parisian domestic architecture. The n children's hospital at Vienna is also illustrated, and mineral water establishment at Evian.

Deutsche Bauzeitung (Berlin) gives a number of ill trations of Chinese timber buildings, of the new town thea at Hagen, of new public buildings at Glogau, of the n Stadthaus at Berlin, and of a picturesque mountain chu on the Au near Berchtesgaden.

Het Huis (Amsterdam) in an article on antique art ill trates several examples of furniture of the seventeenth a eighteenth centuries. The tombs of the Heeren van Ijselst are described and illustrated, as is also the sanatorium Groesbeek.

The *New York Architect* (New York) illustrates in peculiarly beautiful style some of the work of Mr. Ha Allan Jacobs.

Stone (New York) gives an excellent photograph of Bombardiera portal at Verona. Our contemporary's insta of concrete failure this month is that of the Prospect Str bridge at Akron, Ohio.

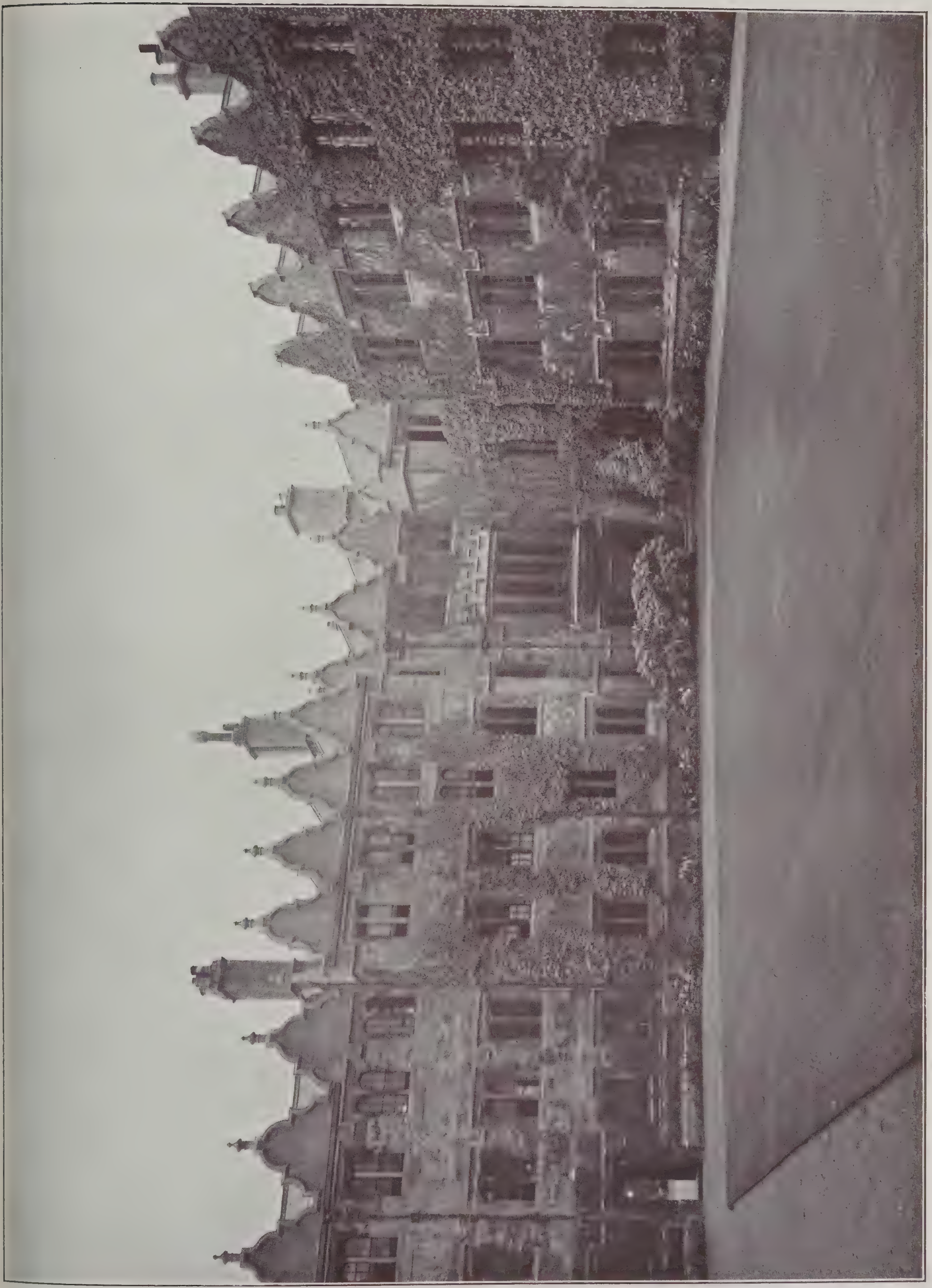
COMPETITION NEWS.

St. Marylebone, London.—The designs submitted in co petition for new Municipal Buildings for the Metropoli Borough of St. Marylebone have been examined by Assessor, Mr. H. T. Hare, F.R.I.B.A., and he has selec the following designs:—First, No. 15, Mr. Edwin Coop F.R.I.B.A.; second, No. 79, Messrs. Thomas Wallis J. K. Bowden; third, No. 39, Messrs. North & Robi fourth, No. 13, Messrs. Septimus Warwick & Herbert H We shall give a critique of the designs in our next issue.

The following designs were commended by the Assessor No. 76, Mr. Wm. Whitehead; No. 99, Messrs. Edwin Hall & E. Stanley Hall; No. 108, Messrs. Clyde Young H. S. East; No. 121, Mr. Matthew J. Dawson; No. 1 Messrs. H. Townshend Morgan & Alan Bruce; No. 157, A. Brumwell Thomas.

The National Advisory Town Planning Committee h decided to try to arrange two conferences—one to be held Manchester on March 27 and 28, the other in London April 24 and 25.

The Advisory Committee of the Fund for providing Memorial of King Edward in London, at a meeting at Mansion House on the 24th ult., unanimously approv the proposal for a memorial in bronze and Portland stone his Majesty, to be erected at Piccadilly end of the Bro Walk in the Green Park. Mr. Bertram Mackennal a Mr. Edwin Lutyens were requested to prepare and subm within three months a complete model of the memorial. T committee rejected an alternative proposal for a site at Hy Park Corner submitted by Professor Adshead.



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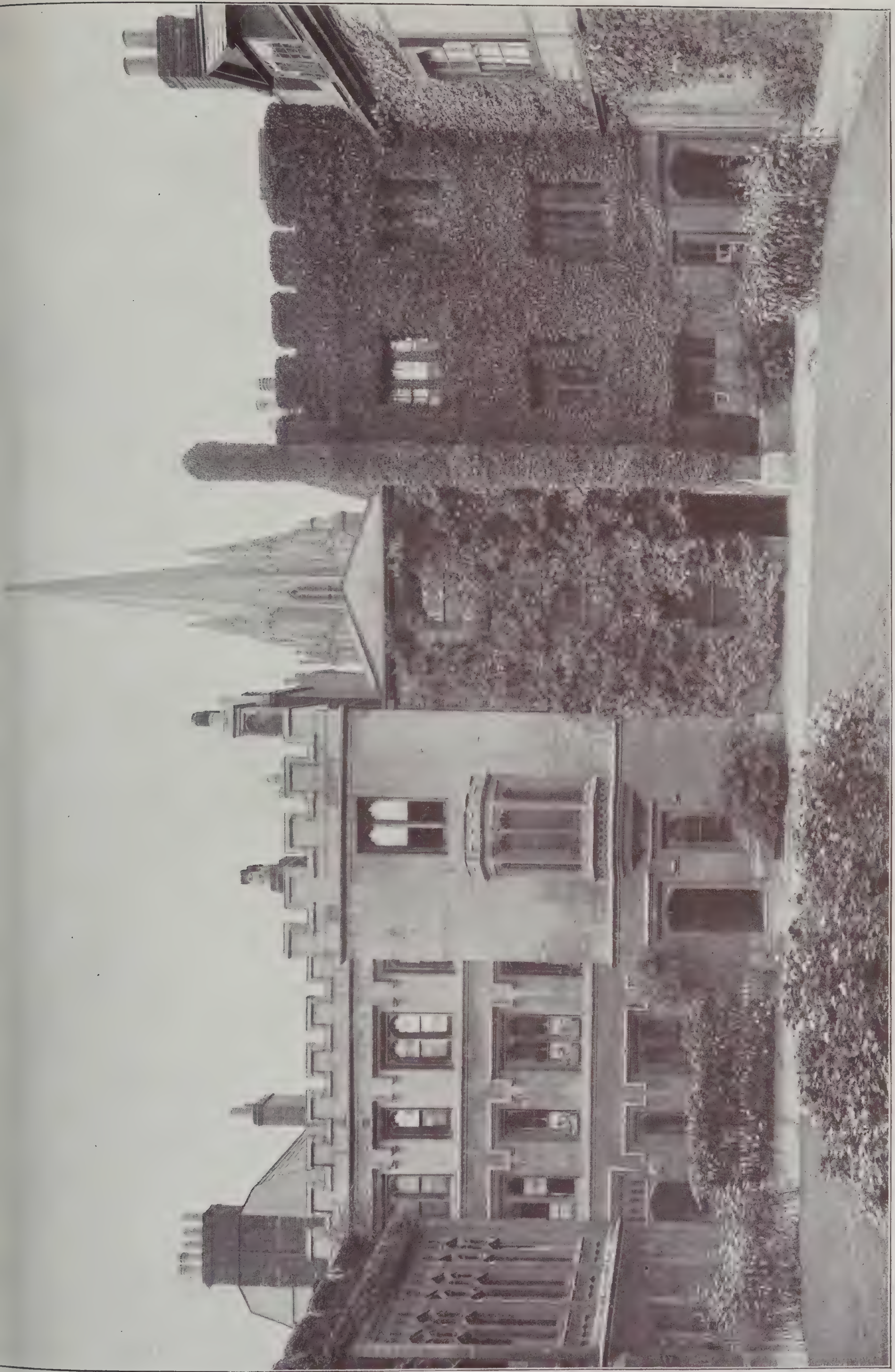
Oxford College Series. No. 117.—Oriel: Inner Quad from Common Room Door, shewing S. and W. Sides.



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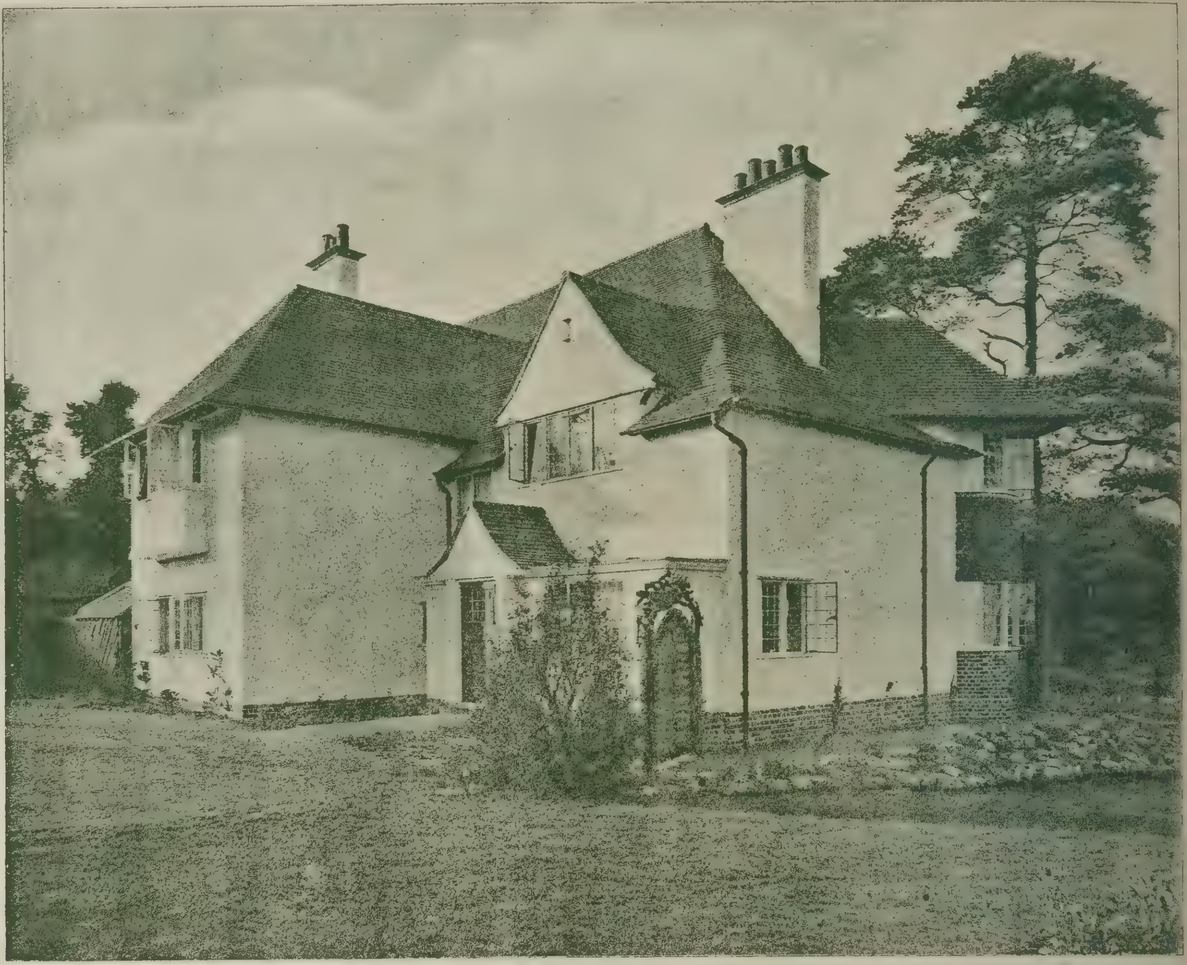
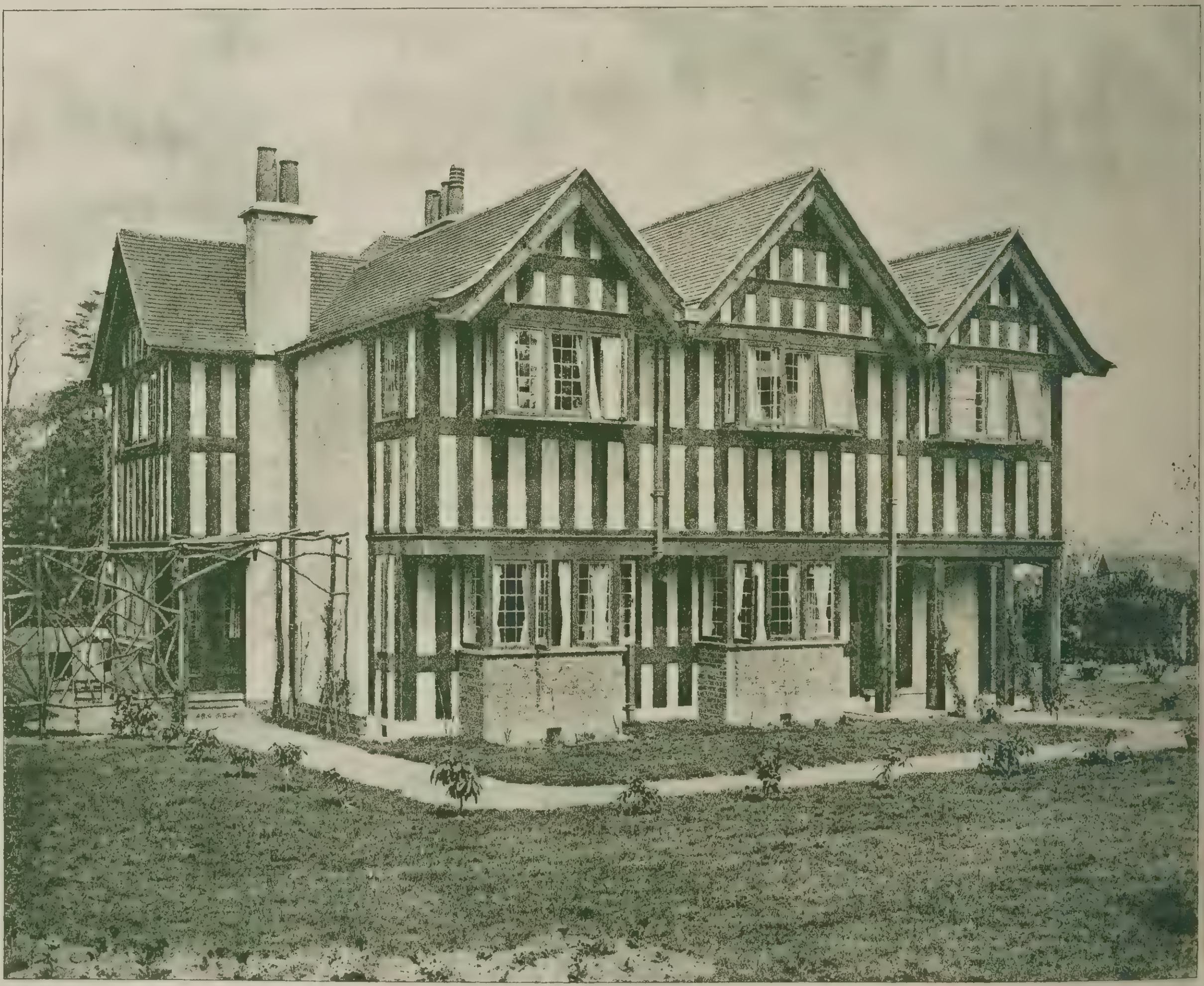
OXFORD COLLEGE SERIES. No. 118.—ORIEL: ST. MARY HALL QUAD.



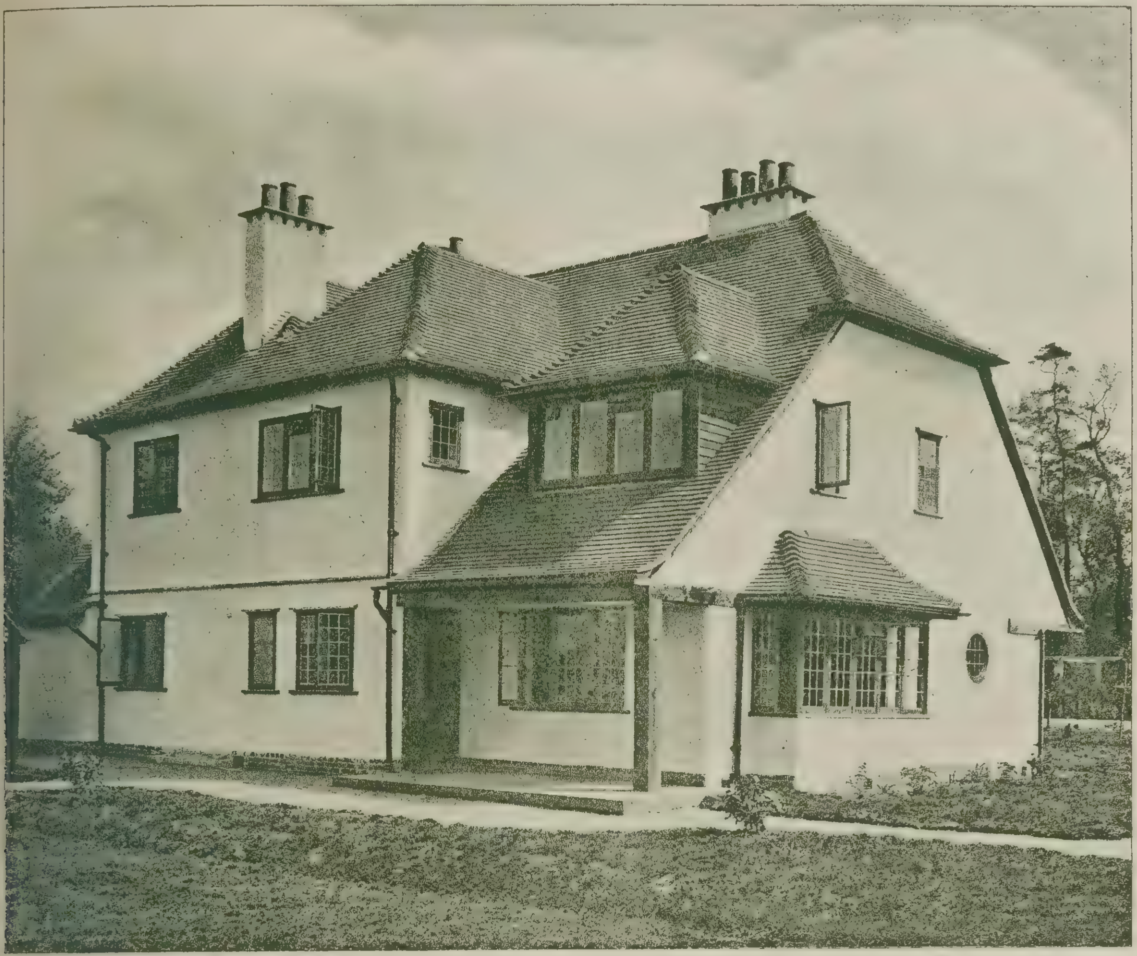
"ASHLEWORTH," GERRARD'S CROSS.



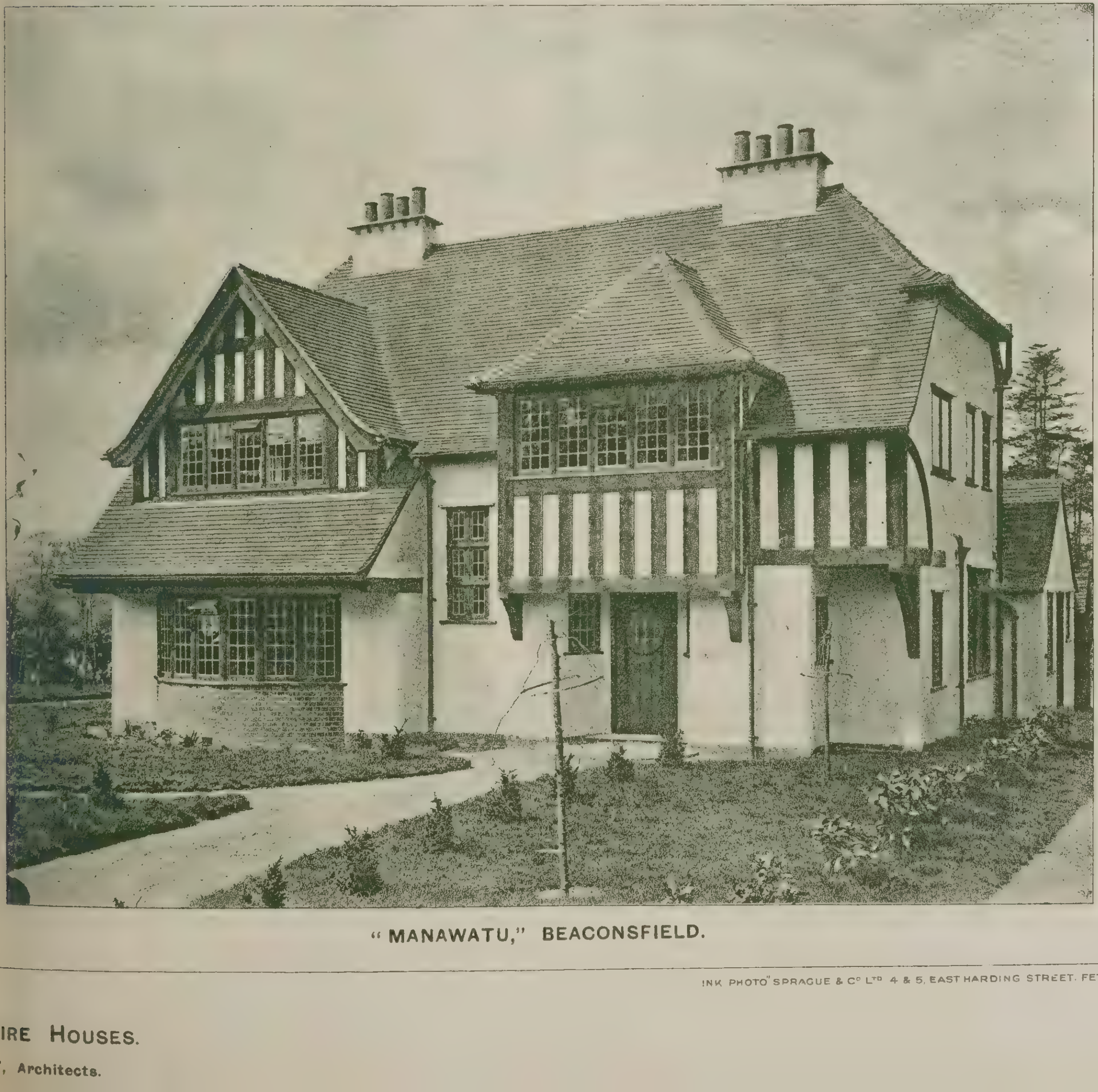
"UPLANDS," BEACONSFIELD.

MODERN BU

Messrs. JOHS



"MANAWATU," BEACONSFIELD.



"MANAWATU," BEACONSFIELD.

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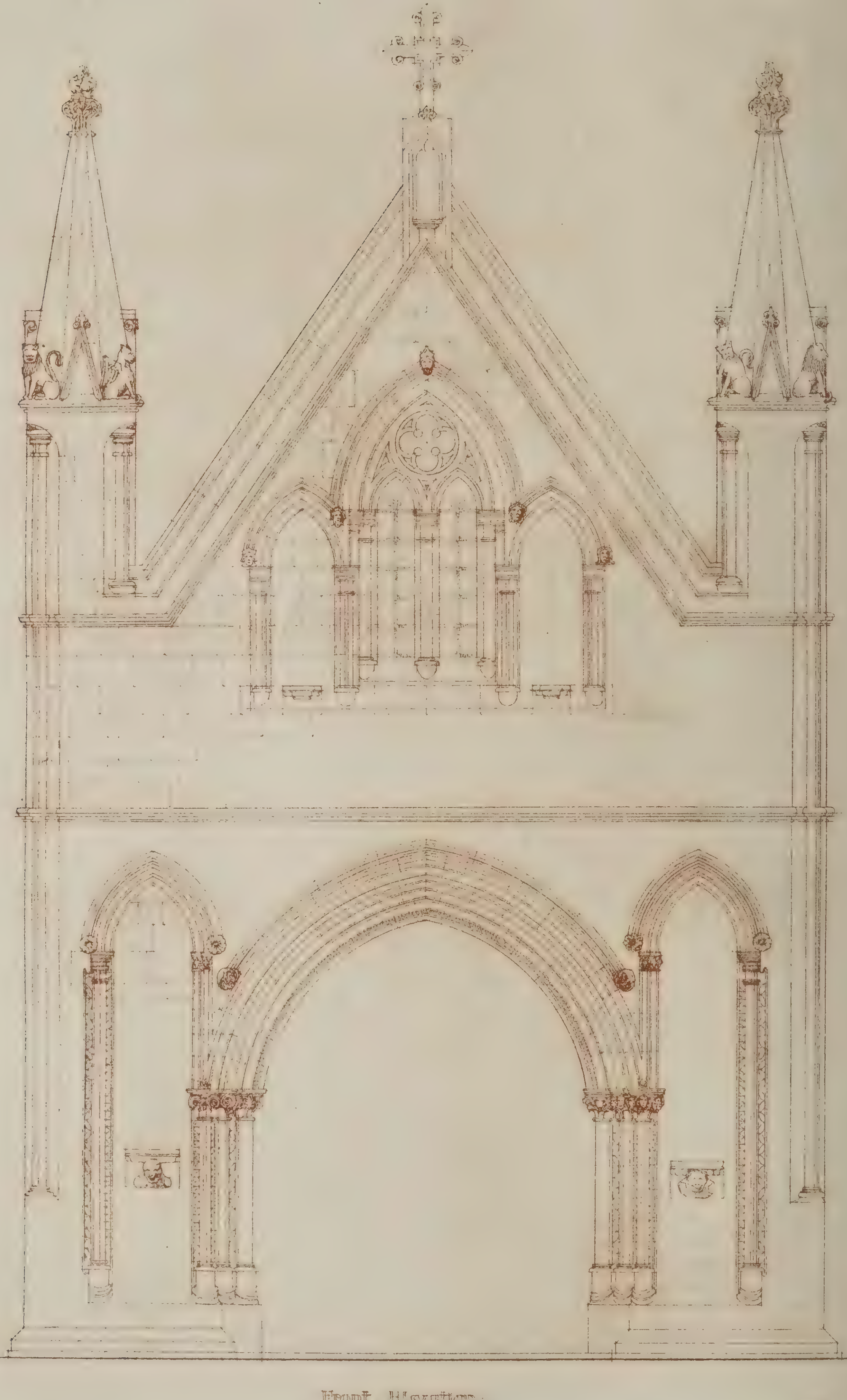
SHIRE HOUSES.

ODY, Architects.

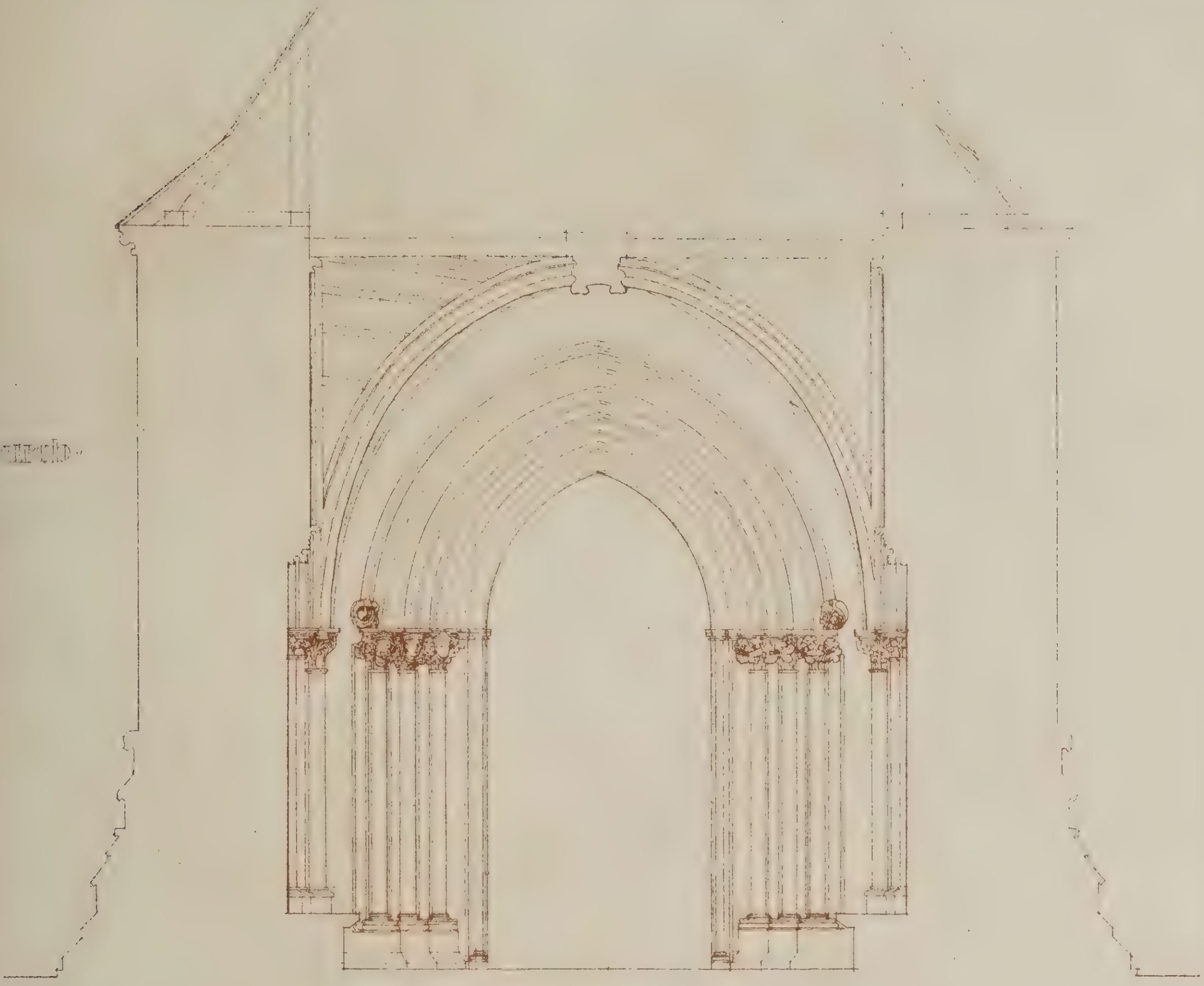


Front Elevation

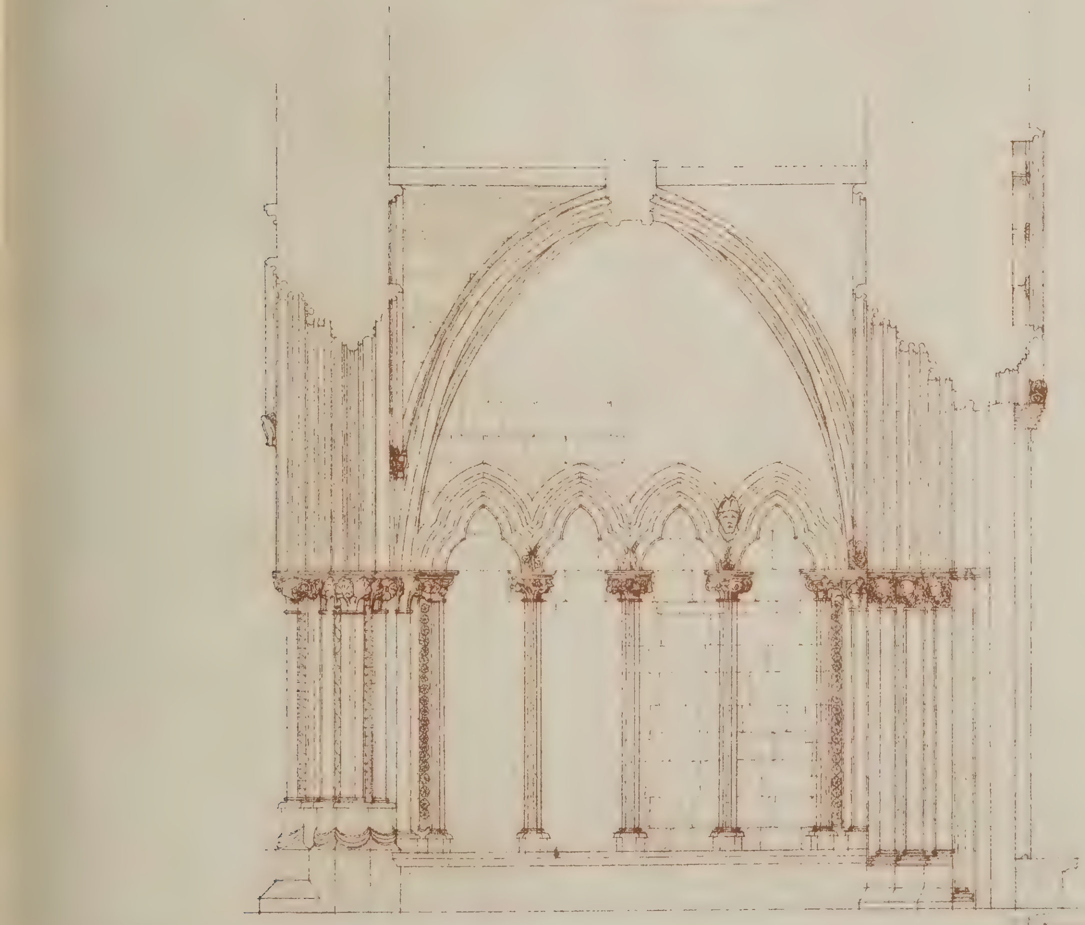
PRIZE DR

"THE ARCHITECT" STUDI

y · Church ·



Cross · Section



Longitudinal · Section

Measured & Drawn
Summer 1911
"Doric"

"INK PHOTO" SPRAGUE & Co Ltd 4 & 5, EAST HARDING STREET, FETTER LANE. E.C.

"Doric."

HING & MEASURING CLUB.

The Architect.

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FORTHCOMING EVENTS.

Friday, December 8.

Glasgow Technical College Architectural Craftsmen's Society : Paper on "The Duties of a Foreman Mason," by Mr. John Crawford, at 7.45 P.M.

Saturday, December 9.

Royal Academy of Arts : Distribution of Prizes and Exhibition of Students' Work, at 9 P.M.

Monday, December 11.

Architectural Association : Paper on "Is the Texture of Materials a Fetish?" by Mr. Alan E. Munby, M.A., F.R.I.B.A., at 7.30 P.M.

Tuesday, December 12.

Nottingham Architectural Society : Paper on "The Law Relating to Building Schemes," by Mr. W. H. Taylor, F.S.I., L.R.I.B.A., at 8 P.M.

London Association of Master Stonemasons : Annual Dinner at the Cannon Street Hotel, E.C., at 7 P.M.

Wednesday, December 13.

Northern Architectural Association : Paper on "The Evolution of the Church Plan," by Mr. J. Hall, F.R.I.B.A., at 7.30 P.M.

Thursday, December 14.

Society of Architects : Paper on "Alexandria : Its Place in Architectural History," by Mr. G. A. T. Middleton, A.R.I.B.A., at 8 P.M.

Concrete Institute : Paper on "Some Recent Works in Reinforced Concrete," by Mr. G. C. Workman, M.S.E., at 8 P.M.

Sheffield Society of Architects : Paper on "Manufacture of Paper and Methods of Printing," by Mr. C. Pawson, at 7.30 P.M.

COMPETITION FOR MARYLEBONE MUNICIPAL BUILDINGS.

As we announced last week the designs selected by the assessor, Mr. H. T. Hare, F.R.I.B.A., as the most meritorious were :—First, No. 15, Mr. T. Edwin Cooper, F.R.I.B.A. ; second, No. 79, Messrs. Thomas Wallis & J. K. Bowden ; third, No. 39, Messrs. North & Robin ; fourth, No. 13, Messrs. Septimus Warwick & Herbert Hall. Mr. Hare also noted as worthy of commendation :—No. 76, Mr. William Whitehead ; No. 99, Messrs. Edwin T. Hall & E. Stanley Hall ; No. 108, Messrs. Clyde Young & H. S. East ; No. 121, Mr. Matthew J. Dawson ; No. 126, Messrs. H. Townshend Morgan & Alan Bruce ; No. 157, Sir A. Brumwell Thomas.

This is one of the competitions which has attracted so large a number of competitors that it is not, from a pecuniary point of view, a profitable one to the profession as a whole, the cost to their authors of the drawings submitted being, at a moderate estimate, twice the amount of the fee that the successful architect will receive for carrying out the building. The chance of securing a £60,000 job in London in an obviously fair and well-conducted open competition was an alluring bait to many who, with the optimistic self-esteem usual amongst artists, felt convinced that they could design a municipal building as well as anyone else. The event proved that they could not, at any rate on this occasion, for the design placed first is pre-eminently superior to every other submitted. It has that simplicity, directness, and effectiveness of plan which, when it is accomplished, seems such an obvious solution of the problem that no other can bear comparison. Such are the qualities of plan that mark a really great design, and we congratulate Mr. Cooper on his achievement.

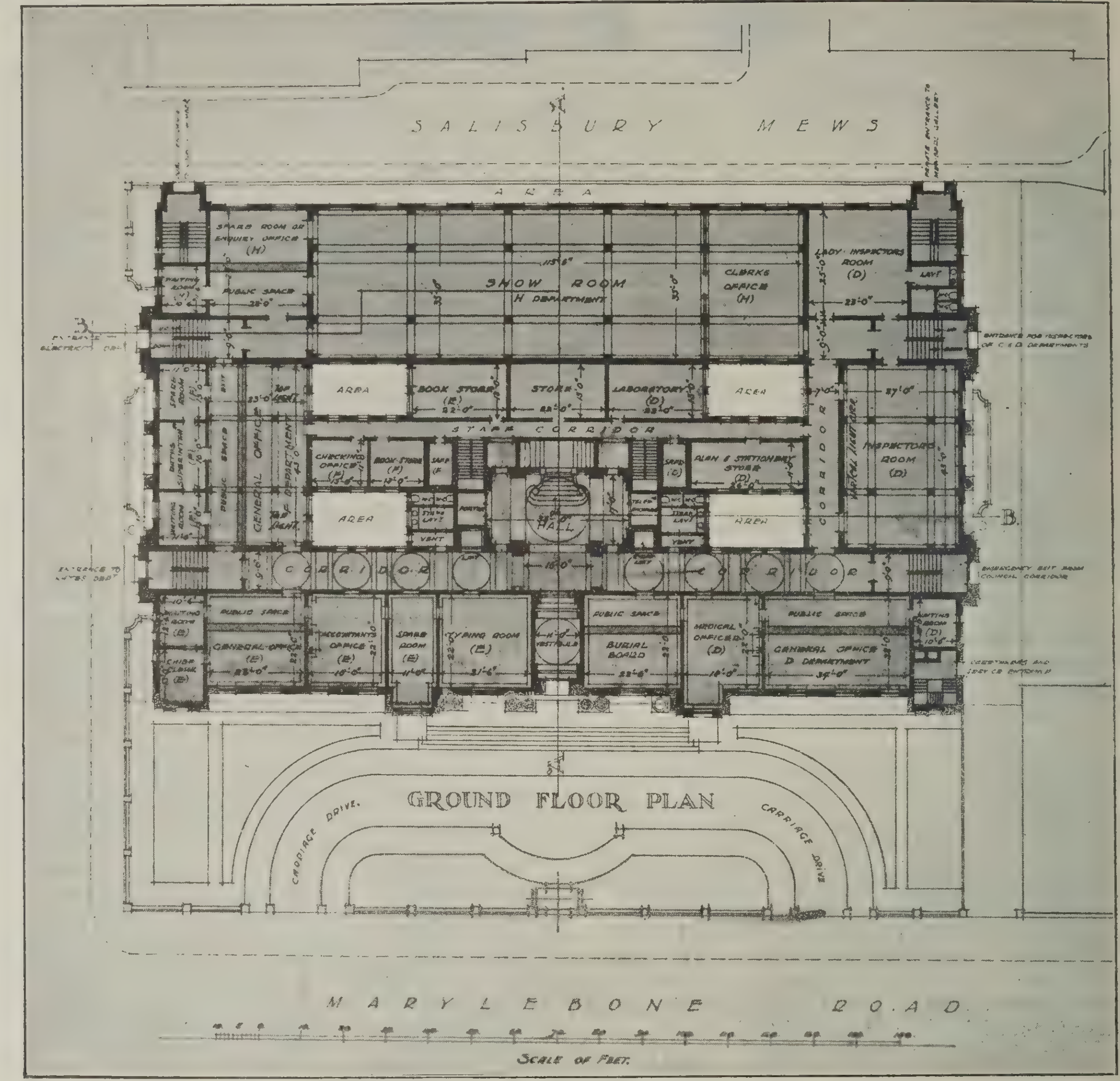
It is one of the curious facts of open competitions that when a number of designs are sent in by architects of the highest ability, there is, more often than not, one whose superiority is head and shoulders above all other competitors. Such designs have been submitted in the past by Lanchester & Rickards, Warwick & Hall, Leeming & Leeming, Wills & Anderson, Clyde Young & East, E. T. Hall & Son, J. S. Gibson, Sir Brumwell Thomas, A. W. S. Cross, S. B. Russell, and yet none of them have on this occasion attained to anything like an equality with Mr. Cooper. If the cracks were always at the top of their form there would be fewer designs submitted in open competitions, but as there is always the possibility and even probability that some of them may be off colour or not competing, the young and the ambitious who have not yet won their spurs are encouraged to hope that they may find their opportunity.

Besides, the cracks were once young and inexperienced, and have often won their way to the front by dogged perseverance and repeated effort in spite of failure, so there are always plenty of young men eager to follow their lead. Then there are others, who are represented in no small number in this competition, those who repeatedly produce good and able designs, but not quite good enough to win, such as Jemmett & McCombie, J. B. Fulton, Robert Atkinson, Lovegrove & Papworth, William Flockhart. When we take into consideration all these different groups, we begin to understand why a well-conducted open competition attracts so many participants, and if the result is a pecuniary loss to architecture as a business, it is, in our opinion, beneficial to architecture as an art.

In a well-conducted and properly assessed open competition nowadays, a very good design is required to command success, and it is surely an advantage to the art that a number of artists should be trying to produce a very good design. And from this point of view the open competition is superior to the limited. We have seen at Marylebone that the cracks are not always at the top of their form, and if half a dozen of the ten we have mentioned above had been invited to join in a limited competition, is it conceivable that they would have produced something better than they have done in the open field? But the best they could do has been bettered.

Two things are required in the evolution of a first-class plan, the conception of a good idea and the thoughtful elaboration or working out of the primal conception. Then there results such a plan as Mr. Cooper's, in which everything seems to be in its right place and to fit in with everything else. The next reform that we want to see universal in open competitions is the separation of the conception from the elaboration. Let one and all submit their primary ideas in the simplest possible fashion and then let only those who have satisfactory ideas work them out. In this way there will be a saving of the vast amount of entirely fruitless labour that is now expended in every open competition on ideas that are fundamentally wrong.

The basis of Mr. Cooper's success in plan seems to us to be the manner in which he has utilised his lower ground floor, which too many of the other competitors have regarded as a basement. The space thus gained has enabled him to provide two large internal courts, 35 feet by 30 feet, and even on these there are dependent for



MARYLEBONE MUNICIPAL BUILDINGS.—SECOND PREMIATED DESIGN. By Messrs. Wallis & Bowden.

their light hardly any parts of the building than corridors, stairs, lavatories, and cloakrooms. The main idea of a principal entrance from the Marylebone Road leading to a grand staircase which forms an approach to the committee-reception rooms and council chamber is one that is shared by the designs placed second, third, and fourth, as well as by others less favourably assessed by Mr. Hare. As all the designs are priced, in accordance with the conditions, at the uniform figure of 1*s.* 2*d.* a cube foot, the figure of Mr. Cooper's estimate, £57,653, shows that his plan is an economical one. The exterior is dignified and well composed with a lofty central tower, at an additional cost, and the detail is Franco-American of the Beaux-Arts type.

Messrs. Wallis & Bowden, in the second premiated design have a more grandiose treatment of the principal stair, which obliges them to reduce their four internal lighting areas to very small dimensions and to depend upon these to a considerable extent for many offices, though of minor importance. The inferiority in compactness is shown by the estimated cost of £69,350.

The third premiated design, by Messrs. North & Robin, though similar in its main lines to that placed first, is inferior in point of detail, as, for example, the location of the mayor's parlour, with its outlook on to an internal court. They have, however, managed to keep down the cost of their design to £56,952.

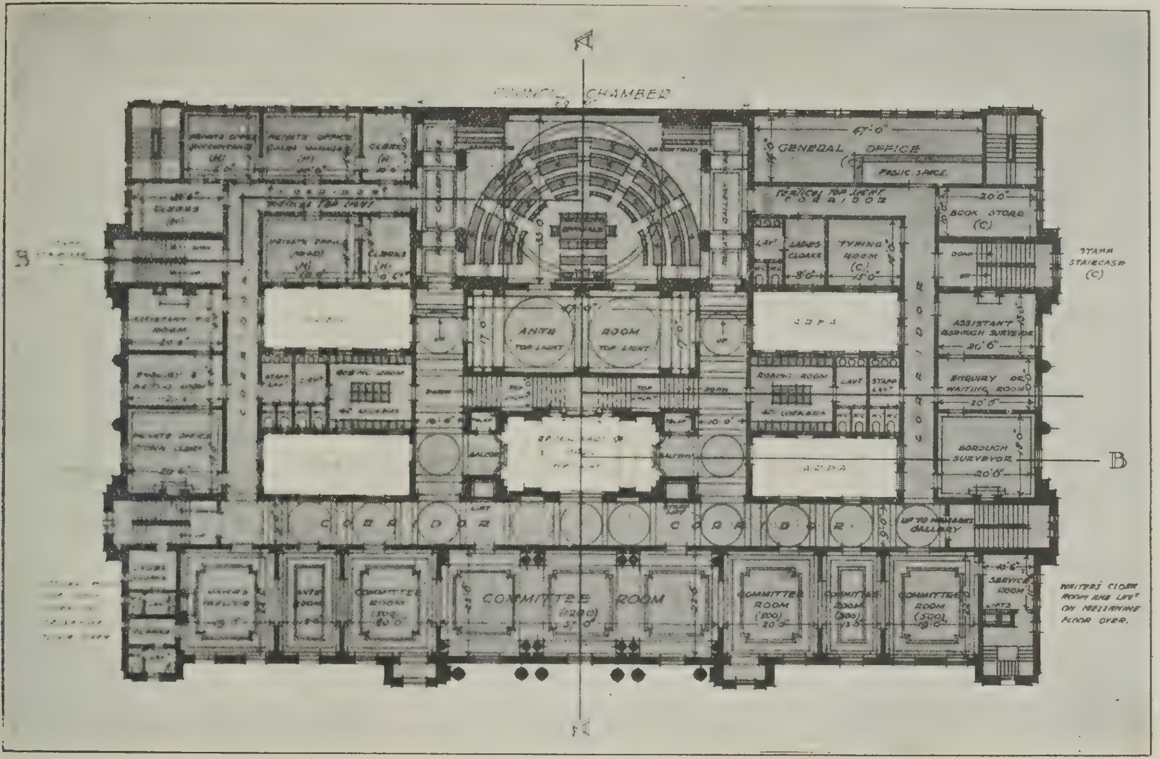
The design by Messrs. Warwick & Hall, which has been placed fourth, differs from the first three in placing the council chamber at one corner of the site. This enables them to treat their main staircase in a more satisfactory way, though more costly than in the designs placed first and second, in which the first-floor landing of the stair is somewhat lacking in dignity. The estimate for this design is £69,255.

Mr. William Whitehead's commended design, except in having the council chamber in the centre, is on somewhat similar lines both in plan and detail to the winner, and, like it, is economical, the cost figuring out at £56,000. It is a design good enough to win if there had not been a better.

Messrs. Edwin T. Hall & E. Stanley Hall have departed from the usual lines and placed their council chamber in a projection on the west side of the site. There is a big entrance hall on the ground floor and the reception hall on the first is a colonnaded gallery or corridor instead of a committee room. Thus the plan is well adapted for ceremonial functions. The design shows a good dignified elevation, with colonnade to the front. The cost is estimated at £69,989.

Messrs. Clyde Young & H. S. East manage a clear circuit of corridor on the first floor, with the council chamber in the centre; but the approach to this latter is rather abrupt. The electric light department is on the Gloucester Place front, which Mr. Hare evidently did not think the most suitable, and possibly this was the determining factor that caused this design to be only "commended" instead of premiated. The cost is moderate, £57,500.

Mr. Matthew J. Dawson also has his council chamber



FIRST FLOOR PLAN.
MARYLEBONE MUNICIPAL BUILDINGS.—SECOND PREMIATED DESIGN. By Messrs. Wallis & Bowden.

in the centre, but the approach from the main stair is less abrupt. The lighting areas are not altogether satisfactory.

Messrs. H. Townshend Morgan & Alan Bruce have produced an effective interior, with a workable and architectural plan. The seating of the council chamber suggests party politics to an extent undesirable in municipal life. The elevations are quiet and dignified in the use of the Doric order. The cost is estimated at £64,865.

Sir A. Brumwell Thomas has made too much of his internal approaches, so that the council chamber has to be fitted in at the end of the site; thus the grand principal staircase leads to nowhere in particular and delivers on to balcony corridors which lead both ways to other corridors, and these ultimately to the ante-room and so to the council chamber. The site in fact is not big enough for the grand conception of the author.

Space does not permit of our noticing more than a few of the remaining designs.

Messrs. Lanchester & Rickards have sacrificed their chance of success to the fetish of axiality, and as the longest dimension of the site is parallel to Marylebone Road, have decided that the major axis of the site must be their principal axis and run east to west. This entails on that axis a pseudo-principal entrance in Gloucester Place, but the main entrance is to be from Marylebone Road, so one of two similar and symmetrical entrances on that front must be treated to a portico and balcony to make it more important than the other. The "main" entrance leads to a central hall on the principal axis, and then you turn left to the council chamber up straight flights of stairs or right to the office stair. The council chamber must be on the principal axis, and so is located on the Gloucester Place front—not a desirable position. The detail is of very florid Rococo character and the cost, £79,450, is prohibitive.

Messrs. J. S. Gibson, Skipwith & Gordon conceived a general idea similar to that of the winner, but the working out is crude and lacks thought. The design is elaborate in detail, with a tower at the front, and the cost is estimated at £68,000.

Mr. J. B. Fulton sends a good plan somewhat similar to the winning one, and a fine set of drawings with a domed tower as a feature of the external composition. The cost is estimated at £72,190.

Mr. F. T. Verity adopts the correct main idea, but with a big entrance hall. The seating of the council chamber is rather peculiarly arranged. The drawings include a beautifully drawn detail in which a French treatment of the Greek Ionic order is adopted.

Mr. W. Curtis Green has a staircase too grand for the site, which accordingly necessitates wriggling round balconies to reach the ante-room, and then there is no space for the council chamber on the direct line; and this, as in other designs, including that of Messrs. Warwick & Hall, has to be fitted in at the side. The detail of Mr. Green's design is distinctly founded on French Renaissance work of the seventeenth century.

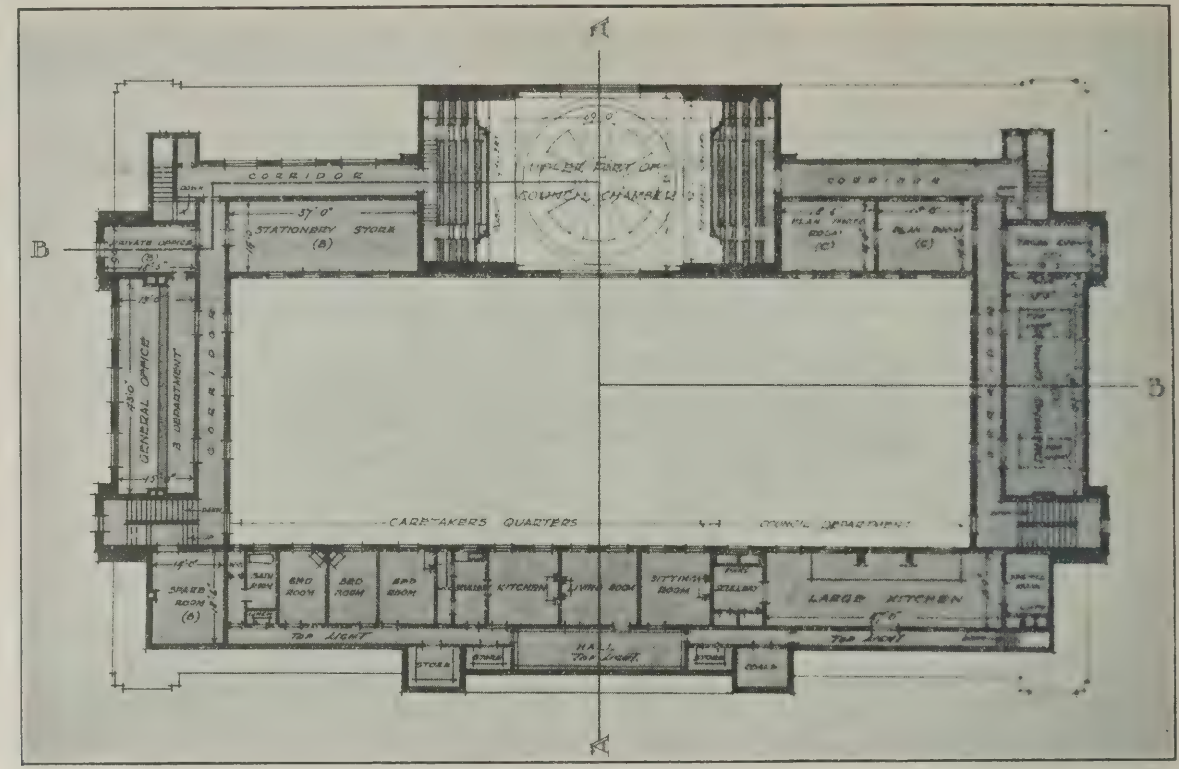
Messrs. Lovegrove & Papworth have sent in an able design, with a plan very thoroughly and commendably worked out in detail. and are unfortunate in not obtaining recognition.

Messrs. George Elkington & Sons have, like Mr. Cooper, a central tower, but their estimate is too high for the occasion, £76,478. The council chamber is in a quiet position, but the grand staircase, as in so many other cases, leads to nothing.

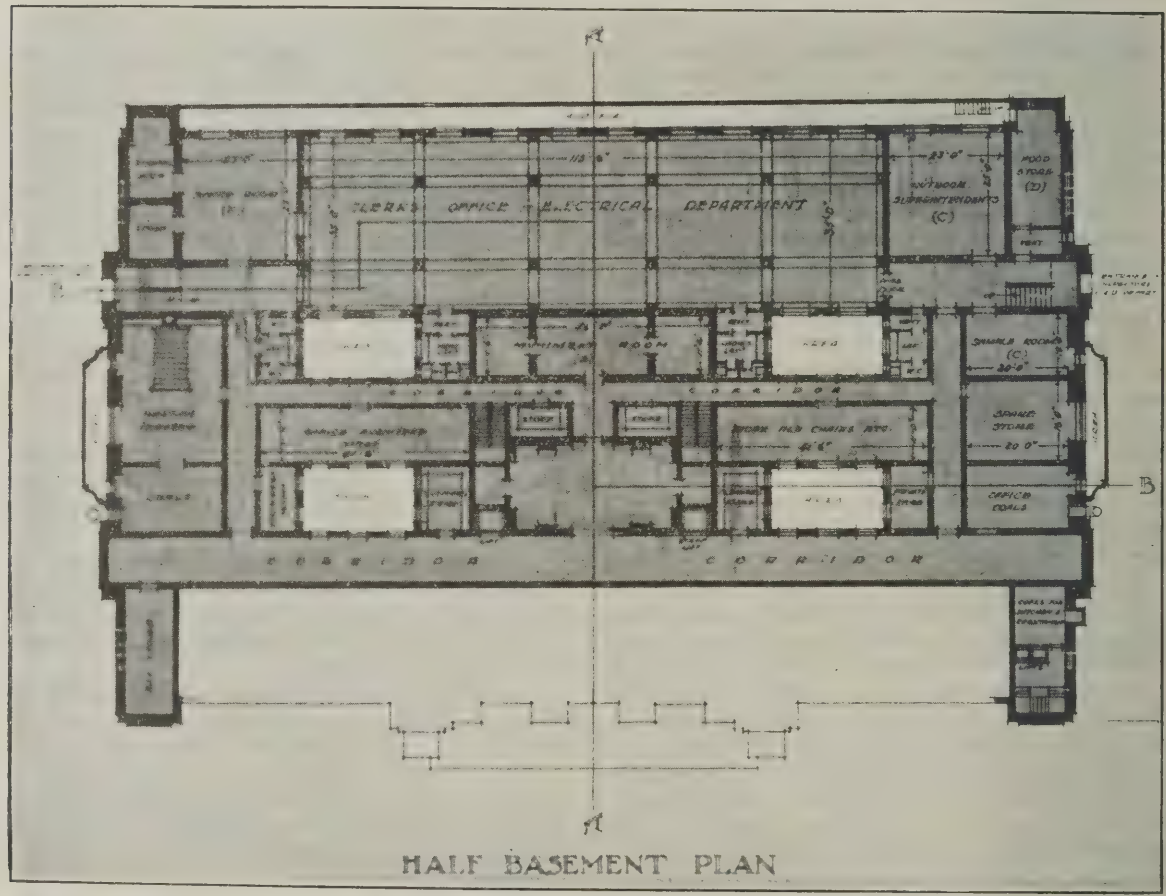
Similarly Messrs. Mangnall & Littlewood desire to spend £72,147, and their good plan is out of court through too much desire for internal effect.

Mr. Charles Gascoyne has evolved an effective and economical plan, with very nice detail in his external treatment. He has thus avoided the temptation to be grandiose, which has tripped so many of his fellow-competitors.

It is instructive to notice in the designs that have not been premiated or commended by the assessor how many have failed through a desire for a grand approach to the first floor. The main entrance being from the Marylebone Road, the principal axis of the building must be the minor one of the site. In the designs placed first, second, and third the council chamber, with its ante-room and the main entrance, have been placed correctly on the principal axis, and the authors have contented themselves with as good a principal stair as the depth of the site permitted and their ingenuity could devise. This was



SECOND FLOOR PLAN.

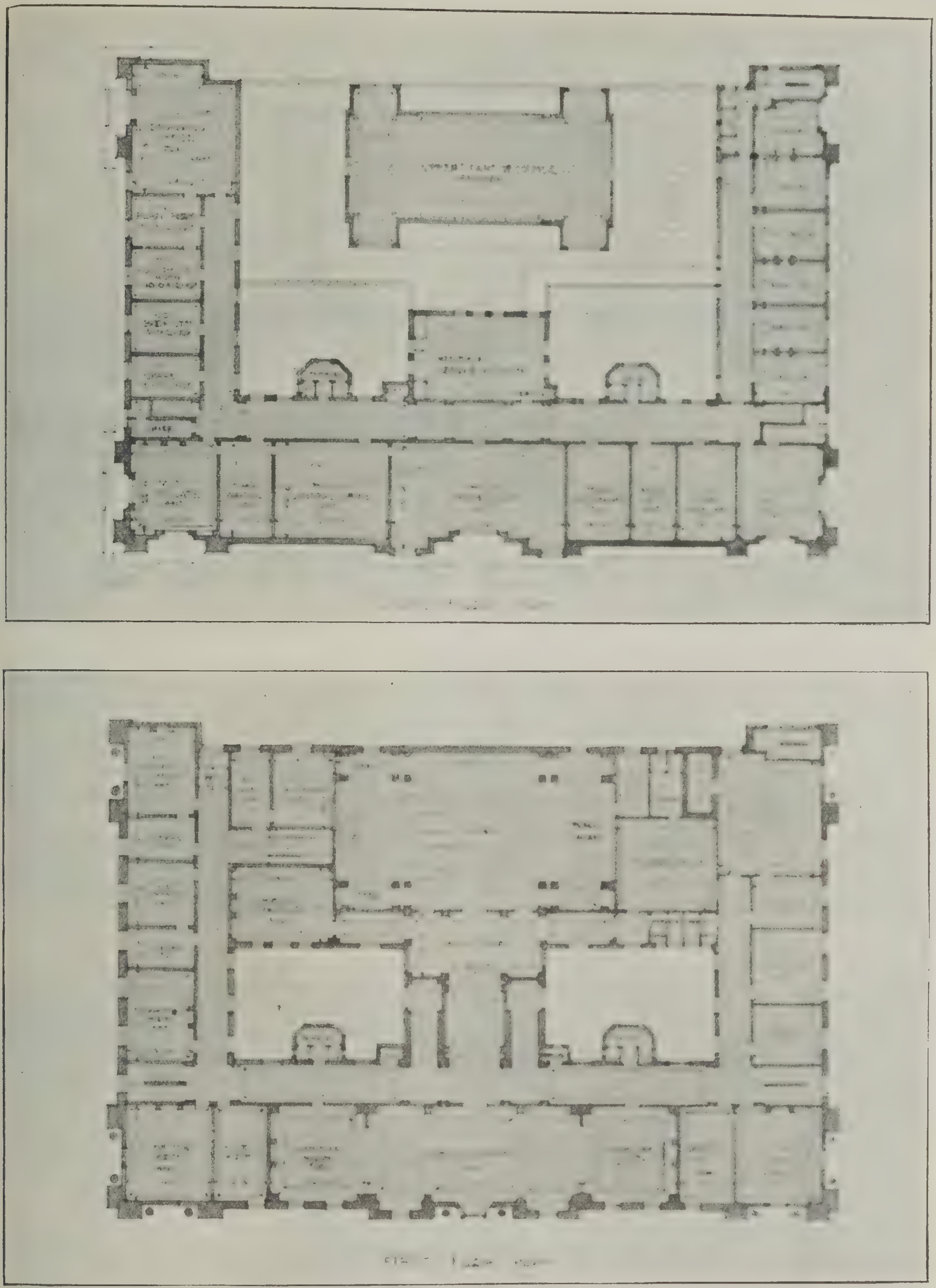


HALF BASEMENT PLAN

MARYLEBONE MUNICIPAL BUILDINGS.—SECOND PREMIATED DESIGN. By Messrs. Wallis & Bowden.

not good enough for Messrs. Warwick & Hall; so they planned a grander approach, but then they have to turn round the corner to the objective of the approach, which is, æsthetically, bathos. Many others have been similarly misled.

There is an apparent compensation in the accessibility to the electrical showroom from the grand entrance and approach on the ground floor, as seen in the fourth premiated design and others of similar type; but the compensation is not really adequate, for the municipal electric supply is rather a white elephant to Marylebone, and although demanding so much space is not a feature of the municipal buildings worthy of a grand approach. Mr. Cooper's treatment gives sufficient importance and ample accessibility to the department without undue exaltation.

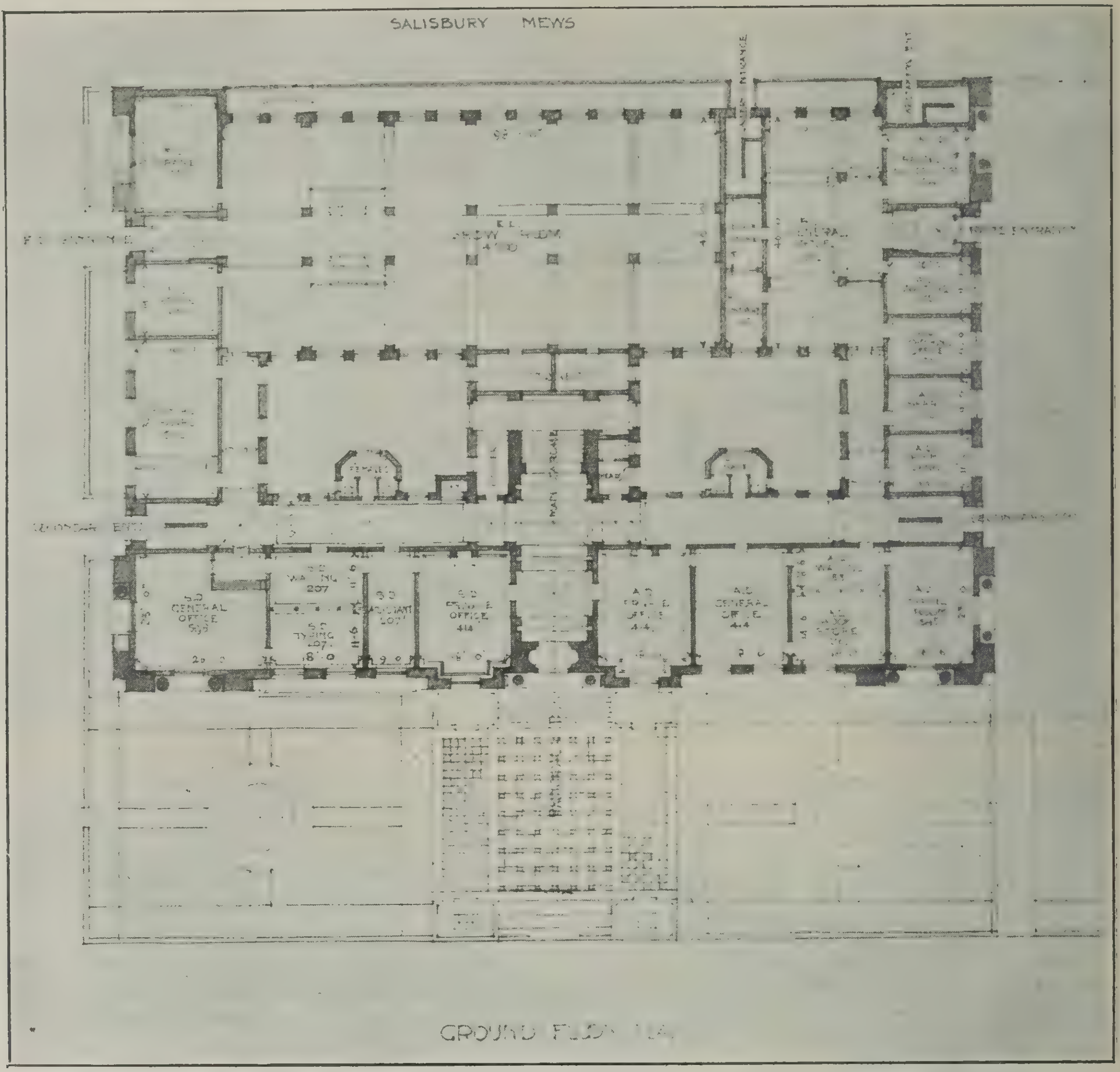


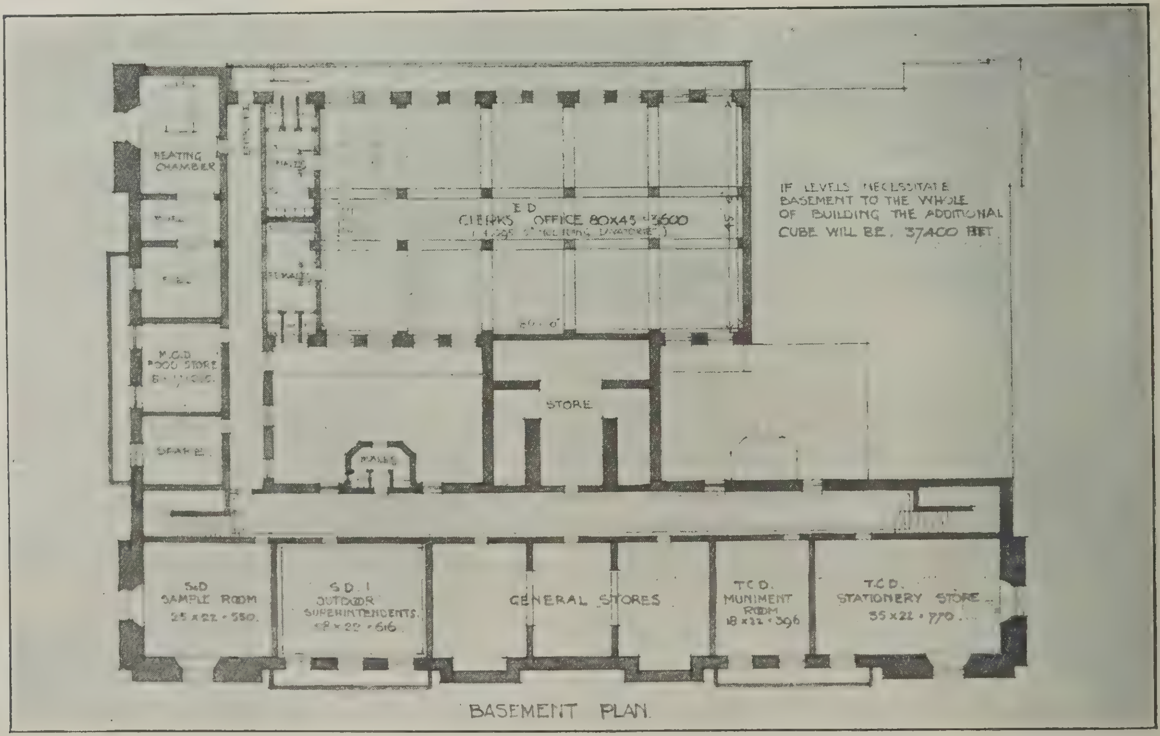
MARYLEBONE MUNICIPAL BUILDINGS.—THIRD PREMIATED DESIGN. By Messrs. North & Robin.

NOTES AND COMMENTS.

It may not perhaps be too much to hope that the latest suggestion by Mr. Norman Shaw for the treatment of the King Edward Memorial as an adjunct to St. George's Hall may terminate the somewhat unseemly and certainly bitter controversy that has raged in Liverpool around the various proposals that have been put forward. Briefly, Mr. Shaw's new scheme is for a fine flight of steps through the podium wall from St. John's Lane to the southern end of the hall, with King Edward's equestrian statue by Sir William Goscombe John as an adjunct on the one side and somebody else on the other. This certainly exalts the hall and so should satisfy its champions, but may not please so much those whose objective is the King Edward Memorial until they realise that, great and good as was King Edward, his reign is but one link in the chain of the nation's history.

The Improvements Committee of the London County Council are now recommending the expenditure of another £20,000 for "the ornamentation of the new bridge," in addition to the amount already agreed upon by the Council in July last, for the reconstruction of Lambeth Bridge at £220,000. The Improvements Committee well deserve,




HEATING CHAMBER
M.O.D FOOD STORE
SPARE
MALES
FEMALES
E.D CLERKS OFFICE 80X45 = 3600
STORE
IF LEVELS NECESSITATE BASEMENT TO THE WHOLE OF BUILDING THE ADDITIONAL CUBE WILL BE 37400 FEET
S.D SAMPLE ROOM 25 x 22 = 550.
S.D. I OUTDOOR SUPERINTENDENTS. 28 x 22 = 616
GENERAL STORES
T.C.D. MUNIMENT ROOM 18 x 22 = 396
T.C.D. STATIONERY STORE 35 x 22 = 770
BASEMENT PLAN

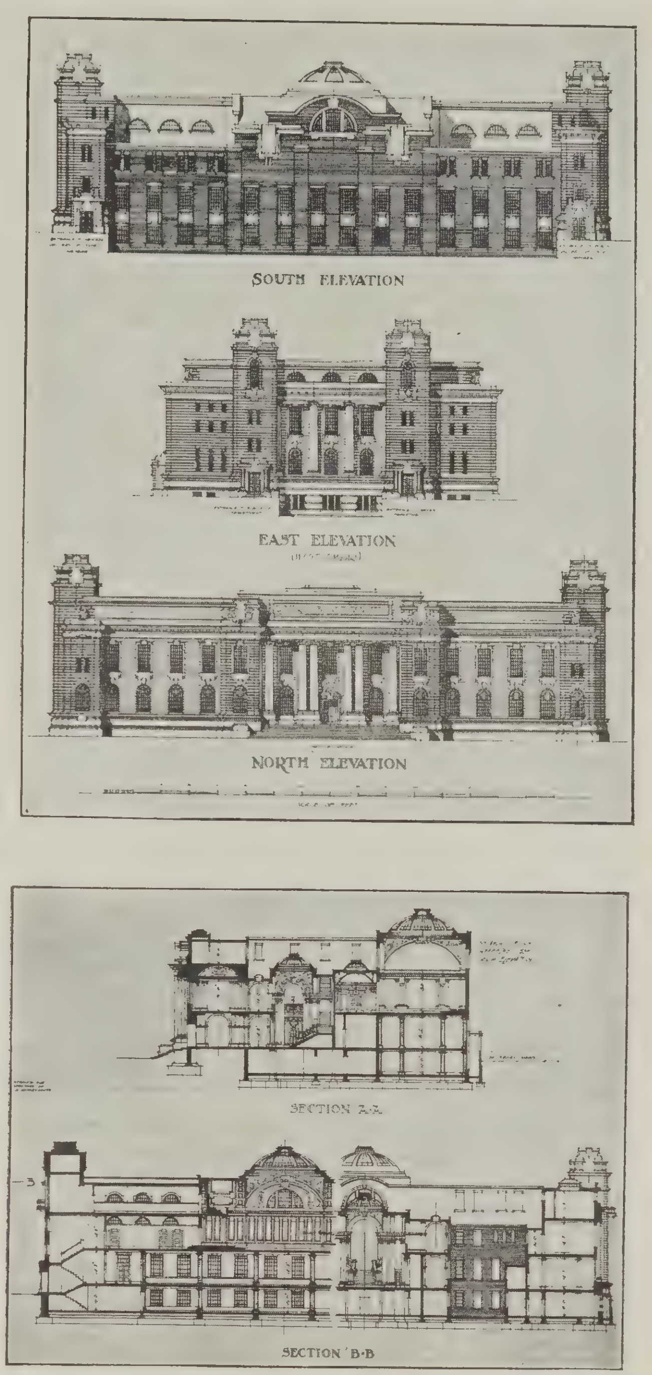
MARYLEBONE MUNICIPAL BUILDINGS.—THIRD PREMIATED DESIGN. By Messrs. North & Robin.

we think, the snub administered by the Finance Committee, to the effect that the cost of the appropriate architectural treatment of the bridge should have been included in the original estimate for which approval was obtained. It is characteristic of the Philistine to get a design made for a bridge to cost £220,000, and then months afterwards to think it can be "ornamented" by spending another £20,000. Obviously the "ornament" is something stuck on and extraneous, instead of being part of the essence of the design.

Edinburgh having in its Calton Hill a twin brother to the Acropolis of Athens was minded in the early nineteenth century to duplicate the Parthenon as a national Valhalla, but funds ran out when twelve columns had been erected and the project was abandoned in 1830. Now with our new-found zeal for civic art the idea is revived, and has found expression in a lecture on the Calton Hill by Mr. H. F. Kerr, A.R.I.B.A., who said that with its fine distance outline and its natural facilities for magnificent views it would, if situated in any wide-awake Continental capital, be made a chief sight of the city. Edinburgh had often been compared to Athens, and there were many resemblances, notably the two hills—the Acropolis and the Calton Hill—immediately overlooking the cities. It was this resemblance doubtless that decided the promoters of the National Monument (in 1822) to make the Calton Hill the site of the reproduced Parthenon. The hills had their differences—the Acropolis was precipitous on all sides, whereas the Calton Hill was of "crag and tail" formation. It was an interesting fact that the summits of the two hills were practically of the same area. The Calton Hill was higher from the adjacent land and altogether of rather more bulk than the Acropolis. The approach to it from Princes Street, and almost all the buildings upon it—the City Observatory, Playfair's, Stewart's, and Burns's Monument, the National Monument, and the Royal High School—were all of good classic design, and when upon the hill one felt in a classic atmosphere. Of the National Monument it was now the ambition of many to see the complete building there, as a memorial to the good and great of all lands. When a classic building was decided upon the promoters did well to select the Parthenon as a model, because, although not a great temple in point of size, yet for beauty of simplicity in design, for refinement of proportion of detail, and for wealth of sculpture it was unrivalled in Greek art. Fortunately for the exterior they had every detail necessary for an accurate reproduction wherein all the delicate refinements of this beautiful building would be included; and what with faithful study and the interested and skilful help of selected workmen—for every stone must be perfect, every stroke of the mallet reverent and true—this great, nay, truly sacred, task would be brought to a successful issue, and the Calton Hill, which had overlooked the city during its centuries of progress, would at last be nobly crowned.

In the consideration by the House of Lords of the Copyright Bill on Report a further attempt was made to deprive architects of the benefit of copyright in the amendment, unsuccessfully moved by Viscount St. Aldwyn, that "Where, in the case of an architectural design or drawing for the erection or restoration of any building, the design or drawing was ordered by some other person and the author was paid for superintending such erection or restoration, then, in the absence of any agreement to the contrary, the person by whom such design or drawing was ordered shall be the first owner of the copyright." It is evident that copyright for architects cannot be regarded as assured till the Bill is finally passed, but the repeated failure of attempts to eliminate the benefit from the Bill inspires us with hope.

The Christmas number of *The Connoisseur* contains an interesting illustrated article on "Barn Elms, the Kit-Cat Club, and Ranelagh of To-day," by Mrs. Willoughby Hodgson, which includes excellent photographs of some of the architecture and furniture of the mansion as well as of the gardens. A good selection of reproductions from drawings by Sir Thomas Lawrence, P.R.A., accompany an article by C. Reginald Grundy.



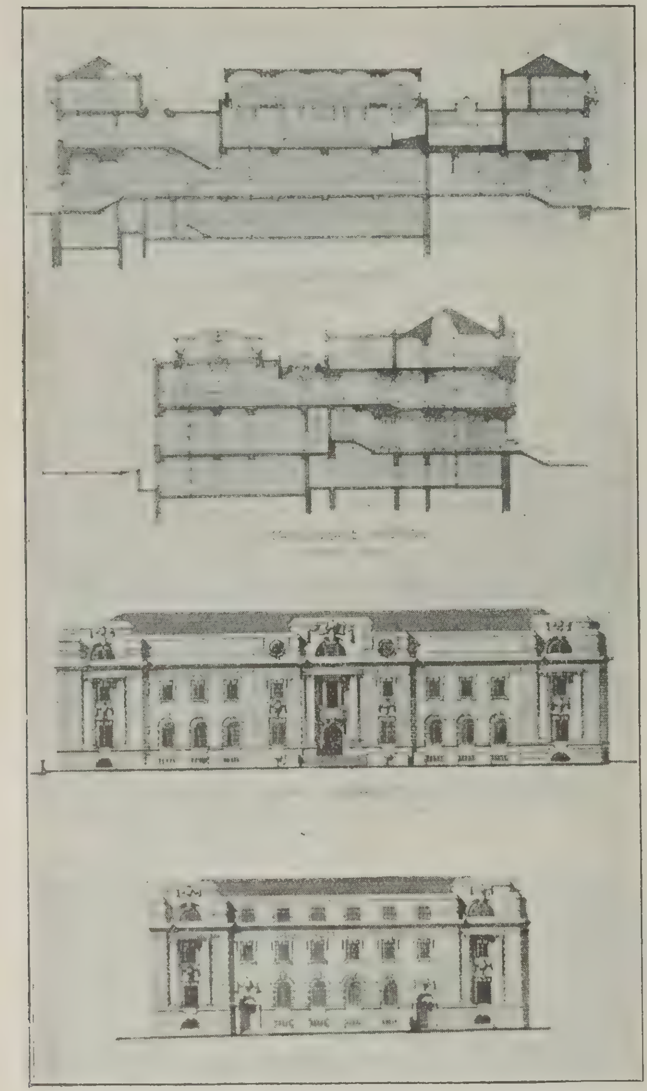
MARYLEBONE MUNICIPAL BUILDINGS.—SECOND PREMIATED DESIGN. By Messrs. Wallis & Bowden.

ILLUSTRATIONS.

THE LONDON OPERA HOUSE.

THE new Opera House in Kingsway stands on a site the total area of which is 24,500 superficial feet, having a frontage in Kingsway of 265 feet, with two returns in Portugal Street and Sardinia Street of 103 feet and 88 feet respectively. The principal facade is of Portland stone supplied and worked by The Bath Stone Firms, Ltd., with granite base, which is continued for 50 feet in Portugal Street and Sardinia Street, after which light red brick facings, relieved by stone bands, have been used.

The main entrance to the building is at the lower end of the Kingsway front. Here a broad flight of marble and mosaic steps leads into the vestibule and booking-offices. The outer and inner entrance doors and screens and the fronts to



MARYLEBONE MUNICIPAL BUILDINGS.—THIRD PREMIATED DESIGN. By Messrs. NORTH & ROBIN.

the booking-offices are in mahogany, as is all the hardwood joinery in the house.

Beyond is the entrance hall, a large space with columns, panelled walls and coffered ceiling, all carried out in fibrous plaster. A panelled mahogany wainscot runs round this hall, which opens on to the private box foyer. There are twenty-one boxes on this tier, twelve of which are provided with large ante-rooms.

Two marble staircases lead down to the stalls, where are also situated sixteen more boxes. The stalls saloon stretches right across the building, and is decorated in the same manner as the entrance hall, the counter and cabinet being in mahogany. From the entrance hall a marble-lined staircase leads to the circle foyer, where the scheme of decoration is of a similar nature.

The stage is 84 feet wide and 65 feet in depth. The proscenium opening is 45 feet wide and 50 feet high, and designed to prevent echoes, so that each portion of the house will have a clear sound of the voices of the performers. The stage is lighted from above by means of eight battens containing 200 lights in each. The footlights have also 200 lights. There are seventy-five lights at each side of the proscenium opening, and there are also twelve hanging lengths of twenty-four lights each at the sides of the stage. Metallic lamps have been used, and are in four different colours. In addition to this, there are eight large projecting arcs to give several effects, such as sunrise, sunset, rainbow, storm, waterfall, &c. The latest improved dimming regulators are used, and at the back of the stage there is a special effect board of 300 amperes. All the lights are operated from one switchboard on the prompt side. Seating accommodation has been provided in the spacious stalls and galleries for considerably over 2,000 persons.

An artesian well has been sunk in the north-east corner of the building to a depth of 450 feet. A motor pump pumps the water into two 800-gallon tanks on the roof, one at eithe
end of the building. These in turn feed two 500-gallon tank
at the Portugal Street end—one for the lavatories and th
other for the heating installation, and two 200-gallon tank
for the supply to the dressing-rooms.

A roof garden has been provided for the benefit of th
artistes, and above this a system of wireless telegraphy wil
be installed, by means of which it will be possible to ascertai
what seats are available, and to make the necessary booking
from any wireless station or from ships at sea fitted wit
wireless when within range.

The upper and lower galleries and the circle are each buil
upon heavy girders carried on stancheons, the box floor bein
suspended from the circle girder and from two wing girder
carried from the circle girder into the stalls on either sid
of the auditorium. The roof trusses are of the lattice type
By means of this construction there are no exposed column
thus ensuring clear views of the stage from all parts.

The "Plenum" system of ventilation has been used, th
two main ducts being formed at each side below the level
the stalls floor, from which branches worked in with the co
crete partitions or formed with galvanised iron tanks a
carried to all parts of the house with four electric fans in th
auditorium roof.

The architect is Mr. Bertie Crewe, and among the contra
tors are the following:—

General contractors, Messrs. The Building Constructio
Company, 1A Cockspur Street, S.W.; steelwork, Messrs.
Moreland & Son, 80 Goswell Road, E.C.; stonework, Messr
The Bath Stone Firms, Ltd., Bath; granite, Messrs. G.
F. Manuelle, 57 Gracechurch Street, E.C.; granolithic step
Messrs. The Robinson Renewable Tread Co., New King
Road, Fulham, S.W.; partitions, Messrs. A. & S. Wheate
193 High Street, Stoke Newington; joinery, Mr. F.
Minter, High Street, Putney; marble, Messrs. Whitehead
Sons, Imperial Works, Kennington; decoration, Messrs.
R. Dean (1910), Ltd., Chapman Road, Small Heath, Bi
mingham; seating, Messrs. Maple, Ltd., Tottenham Cou
Road, and Messrs. F. Wilkins & Brother, 27 Duke Stree
Liverpool; iron casements and decorative glazing, Messr
Wotton & Son, Poplar Walk, North End, Croydon; electr
lighting, Messrs. Malcolm & Allen, Kingsway House, King
way, W.C.; electric light fittings, Messrs. Veritys, Ltd
31 King Street, Covent Garden, W.; hydrants and firepro
curtain, Messrs. T. W. Vaughan & Co., 22 Cross Stree
Islington, N.; heating and ventilation, Messrs. Strode & C
48 Osnaburgh Street, N.W.; lifts, electric and hydrauli
Messrs. Medway's Safety Lift Company, 10 Bush Lan
Cannon Street, and Messrs. Hammond & Champness, Alf
ton Street, Old Kent Road, S.E.; wall tiling, Messrs. Crave
Dunnill & Co., 42 Bloomsbury Square, W.C.; sanita
fittings, Messrs. John Jones (Chelsea), Ltd., Church Stre
Chelsea; brasswork, Messrs. Carter & Aynsley, 54 Bisho
gate, E.C.; mosaic flooring, Messrs. Diespeker, Ltd., 60 H
born Viaduct, E.C.; asphalte, Messrs. Lawford & Co., 65 Fe
church Street, E.C.; sculpture, Mr. Thomas Rudge, 24 Web
Road, Clapham Common, S.W.; bronze work, Messrs. Thom
Brawn, Clement Street, Birmingham; vacuum clean
Messrs. The Vacuum Engineering Co., South Molton Stre
W.; pavement lights, Messrs. Hayward Bros. & Ecksei
Union Street, Borough, S.E.; patent rolling shutters, Mess
A. L. Gibson & Co., Strawberry Vale, Twickenham; artesi
well, Messrs. The Artesian Well Boring Co., 165 Pentonvi
Road.

MARYLEBONE MUNICIPAL BUILDINGS.

WE illustrate this week the successful design by Mr.
Edwin Cooper, F.R.I.B.A., in the recent competiti
and next week we shall give details of the designs pla
second, third and fourth, plans, elevations and sections
which are included with our text and referred to in our le
ing article on the competition.

THE Carnarvon Town Council have prepared a memor
for presentation to the Office of Works concerning Carnar
Castle. It is proposed that the old banqueting hall sho
be rebuilt in commemoration of the investiture of the Pri
of Wales, and that it should then be used as a national
gallery.

THE Board of Education give notice that the library
the Victoria and Albert Museum will be closed from Dece
ber 12, 1911, to January 20, 1912, inclusive, for cleani
re-lighting and general renovation.

ENGLISH MEDIÆVAL ARCHITECTURE.—VIII.

THE essential summit of Gothic style might be described, said Mr. Prior in the eighth of his course of ten lectures at University College, Gower Street, W.C., as a crisis—a turning point which introduced new expressions of sentiment and new factors in building conditions. Yet its outlook was hardly altered at first as the new aspects of architectural styles did not at once rise into prominence. For example, in Westminster Abbey the sentiment of architecture passed from the priest to the king, that is to say, from the satisfaction of religious requirements to that of state and display. But none the less for a full century the religious sanction of church building controlled the expression of architecture. The Gothic theory that every stone of a building should express construction with the utmost economy of substance was in much of early English building completely realised, *e.g.*, the Lady chapel of Salisbury. But at the very moment of this achievement constructive simplicity in vault and window began to be compromised. For instance, the vault of the Galilee porch at Lincoln left the necessities of ceiling construction and multiplied unnecessary ribs. While at the moment the window made the wall a network of arcading, it left the necessities of arch construction and developed bar tracery. In the third quarter of the 13th century the English insularity was invaded. Such peculiar marks as the lofty lancet window, the Purbeck marble slenderness of shaft, the stiff leaf crocket and the hollow undercut moulding were all replaced by the broader, fuller conception of that architectural mechanism which the course of French architecture developed. By the year 1300, however, English peculiarities again showed individuality, and furthermore took the leading part in the European development of Gothic style, and her inventions were spread abroad.

In the years 1275 to 1300, though English style was no copyist of the Ile de France masoncraft, yet the details and moulding of the parts of architecture were practically of the same pattern in England and all the provinces of French style. At Salisbury, on Bishop Bridport's tomb, c. 1262, appeared a class of carving which departed from the earlier stiff-leaved trefoiled type, and this begins what was a peculiar and beautiful phase of English leaf-sculpture. Towards 1280 the natural carving of foliage became common. About the same time there appears in English figure sculpture a naturalistic treatment of draperies in smooth broad folds. This absorption of French technique probably was disseminated from the craft schools of London. One special class of building peculiarly representative of mid-Gothic expression as developed under English conditions was the polygonal chapter-house or room of state of the secular English cathedrals and churches at Salisbury, Wells, Lichfield, Southwell, and York.

At Salisbury together with the chapter hall was built a stately open courtyard or cloister, which is one of the perfect pieces of English art. Similar secular cloisters were added at Lincoln and London at the end of the 13th century. In the making of such accessories it is clear that one passes outside an architecture whose aspects are strictly conditioned by use, for its direct motives began to be overlaid by expediencies of design. These forms of ecclesiastical magnificence had to be made as elegant as possible, and constructional decoration was elaborated to the top of its capacity. Still at Westminster and Salisbury it left place for sculpture worked in the fabric of the building, for a natural carving of capitals in place of the moulded marble uses of thirty years earlier. When as at Wells at the turn into a new century the sculpture of the wall arcade has been displaced by an architectural canopy, that treatment heralds a change from the summit of Gothic.

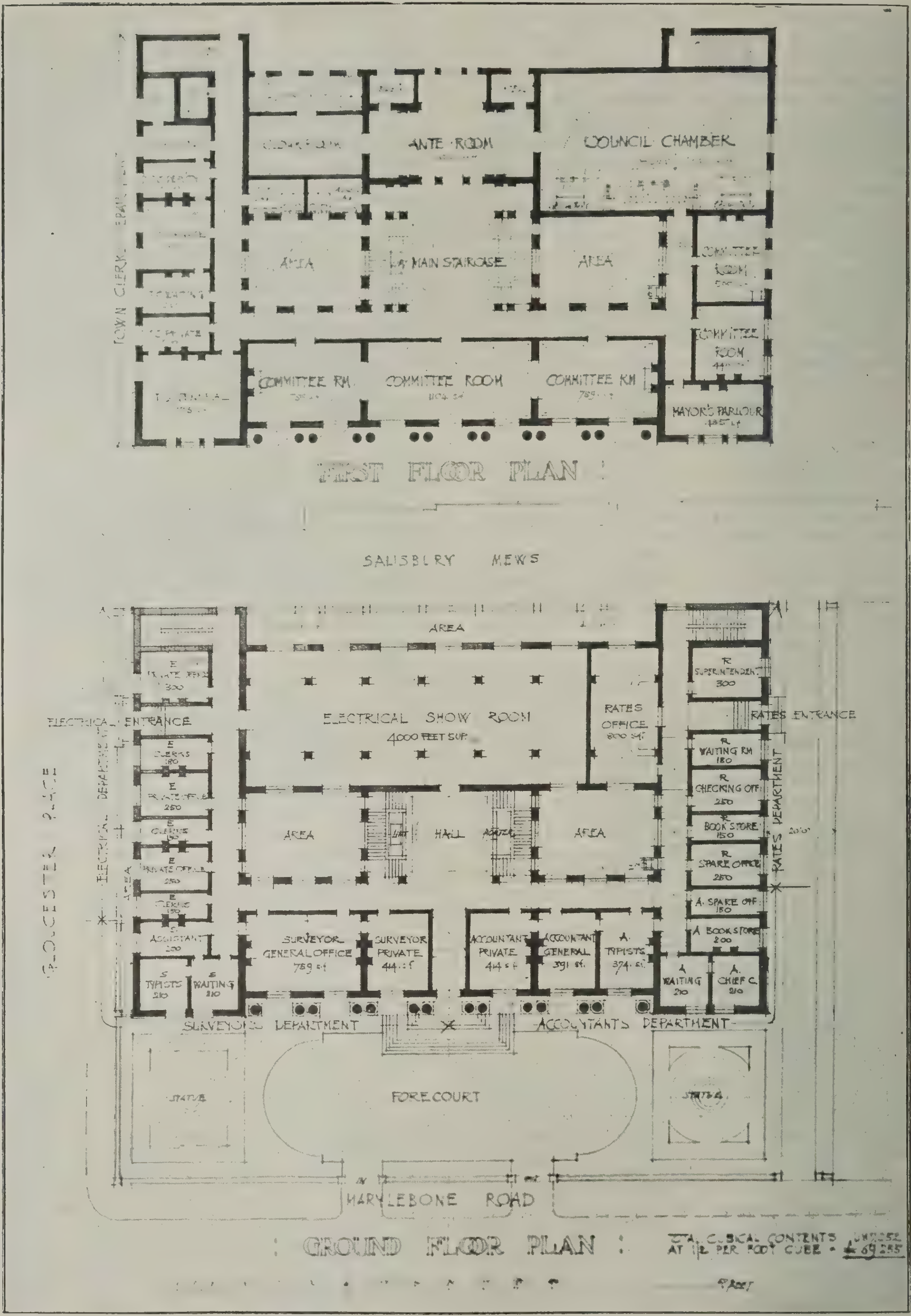
In this Wells chapter-house the creation of Gothic style in England reaches its third phase, *i.e.*, the "Decorated." This rightly implies, said Mr. Prior, that the interest of the mason had passed from the functional (or masonic) invention of building expediency into the superficial invention of decorative expediency. About 1300 the makers of shrines, tombs, screens, statues and images began to separate from the stone masons and to work sculpture independently and outside construction. It marked the commencement, as it were, of the break-up of a family in which the common estate grew more and more reduced until now in the 20th century we have a carcase of a building, a lay-figure without meaning, in itself without expression, built for the purpose of being bedizened by finishings, decoratings, and furnishings that may give it style. We are fortunate in possessing the Eleanor crosses, which date about the last years of the 13th century, and exactly mark the summit of Gothic vitality, and at the same time mark the entry of a new era. The accounts show that the chief mechanic in these works was the mason (coementarius); but there are mentioned in connection goldsmiths and bronze-founders and makers of statues in stone.

At the end of the 13th century three things had already happened:—(1) The Purbeck marble building work had been superseded by the architectural work of the free-stone mason; (2) the Purbeck marble effigies or big sculpture work had been superseded by the free-stone sculptor; and (3) the works of the marble-workers were now neither constructional nor sculptural, but objects of furniture—tombs and stones, the productions of workshop art. Finally, a fourth thing was to happen: the free-stone worker was by the middle of the 14th century to become a shop-worker too. One of the best examples of this change of architectural expression occurs in the doorhead. The expressive symbol of Decorated style may be taken as the canopy—that sort of diminutive model in shorthand note of an architectural façade. Treated as in the Rochester chapter-house, a doorway is as much an insertion in the scheme of building as a metal image or a glass picture.

In the treatment of the wall-arcades the surrender of architectural ideal is similarly shown. At Selby, for instance, c. 1340, the whole surrender of interest is definitely made to traceries and arches. Figure-work is inessential; diapers and cusps are considered sufficient decoration. Such was the final elimination of the sculptor from the building scheme. A contrast of as wide significance can be seen between the motives of triforium decoration at Lincoln in 1270, where the figure-sculpture conditions the scheme, and those at Ely of 1340, whose clever masonic decoration is the accepted finish of construction. The vaulting, the window schemes, and the capitals all tell the same story. We see it too on the large scale of a great architectural composition, as in the tower at Lincoln, or the spire at Salisbury, or indeed the whole effect at Lichfield. It is clear how solidity of construction takes on in the 14th century a disguising dress. The developments of tracery and pinnacle are employed not merely to reduce masses structurally, but as effectually to bury structure under an effect of intricacy. Skilful masons were requisitioned from a distance because of their skill—another condition that wrought on 14th century style. The clients were no longer religious who expressed the simple ambitions of religious fervour in building the most magnificent churches. The monasteries were now become high aristocratic institutions, the preserves of lordly families. The personalities expressed in 14th century architecture were the extravagant lordly client and the competing personal artist. Both by the whims of the one and the zeal of the other, architecture at once assumes an appearance of great variety, both in the big features of design and in the details of execution.

Another symptom of the same kind lies in the development of tracery which appeared in the enormous east windows. At first this development must be counted as an advance towards tenuity of construction, seeing that it cuts out of the block forms which in any scheme of geometrical shaping remained between the figures. But nearly every window of the decorated art is different. The London windows appear to show that the ideas of the glass-painter were at last offering themselves as a condition for window making.

If, however, we must look to the strongest impulses under which the religious and constructive instincts of Gothic style lost their vitality we shall find them in the monument trades. Monuments and memorial chapels are to be seen elbowing in upon the shrines and altars, and crowding against the screens. The shop mason as a statuary was employed to carve the image of the deceased; then as a decorative furnisher he turned out canopies and tabernacles of ever-increasing elaboration and dexterity. The imagers' workshops of the great cities were the sources from which such monuments proceeded. London was perhaps the first in the field; but soon too the crafts of church furnishing flourished in every great city and supplied monuments and effigies, statues and images, screens, retables of stone as well as of wood and metal. But of all such local styles of monumental art the most characteristic and peculiar was that which the masons of Bristol and Gloucester produced. It was the destiny of these to completely transform English style, for the Gloucester style became that of perpendicular building.



MARYLEBONE MUNICIPAL BUILDINGS.—FOURTH PREMIATED DESIGN. By Messrs. Warwick & Hall.

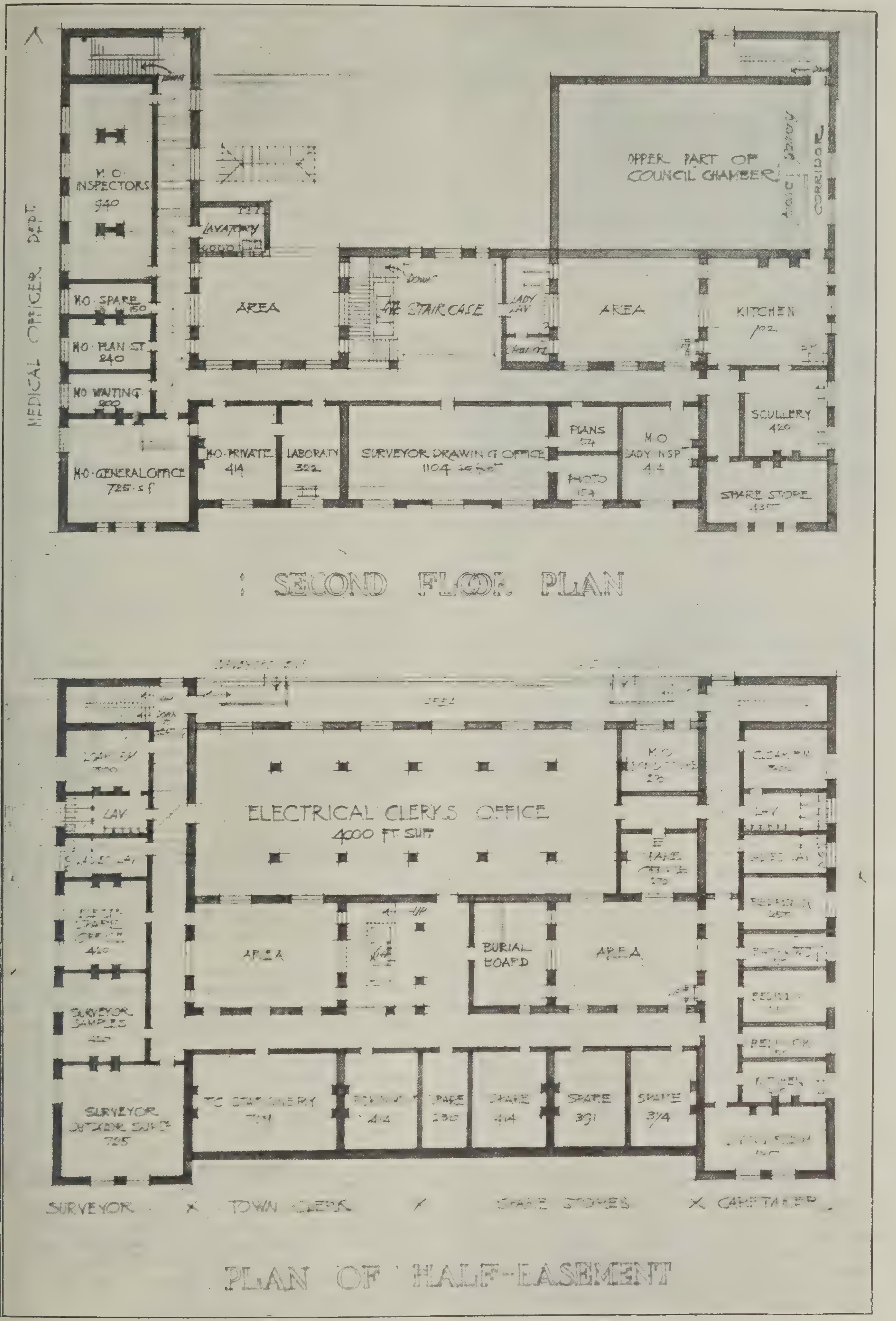
NOTTINGHAM ARCHITECTURAL SOCIETY.

At their meeting on Tuesday, the 21st ult., the Architectural Society of Nottingham invited representatives of the Nottingham and District Master Builders' Association, when Mr. Harry Burke, C.E., of Manchester, presented a paper on "Reinforced Concrete."

The President, Mr. Evans, occupied the chair, and there was a very large attendance of members.

Mr. Burke, who has considerable experience in the design and erection of work generally in reinforced concrete, directed his remarks at the outset to the comparison between the architect and the consulting engineer's position and that of the engineer for the various reinforced concrete systems, stating that the time had come when both the engineer and the architect should be in a position to examine any design sent in detail and become master over the work whilst in progress, which would ensure a thorough understanding and give him confidence.

The lecturer then passed on to the advantages and disadvantages of the construction, and particularly dealt with reinforced concrete against steel frame construction.



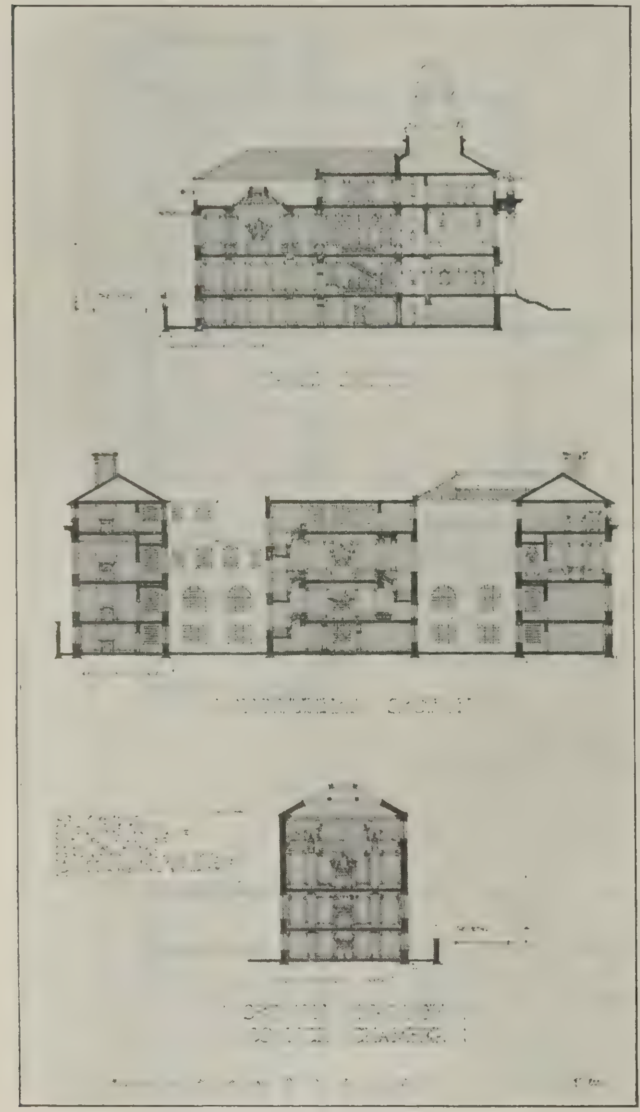
MARYLEBONE MUNICIPAL BUILDINGS.—FOURTH PREMIATED DESIGN. By Messrs. Warwick & Hall.

Three examples he instanced to show where in ordinary architectural work the steel frame, &c., would be more advantageous; and on the other hand where reinforced concrete would be more suitable than either the steel frame or ordinary construction.

For engineering works Mr. Burke stated that the bay system, which modern practice shows is the best for economy and ensures convenience in the handling of material, was the most suitable.

To construct such a works in reinforced concrete would not be as suitable as the steel frame, for the reason that the stanchions must be arranged so as to carry the crane and girders for the roof principals. The cost would be less than reinforced concrete, and the building lighter both in appearance and structure. The work of erecting also would only take a portion of the time compared with reinforced concrete.

He next dealt with house and villa work, showing that as concrete has a cold nature it would not be as satisfactory or



MARYLEBONE MUNICIPAL BUILDINGS.—FOURTH PREMIATED DESIGN. By Messrs. Warwick & Hall.

as cheap as brickwork, and in the summer there would be the chance of condensation and sweating of the walls.

Mr. Burke then turned his attention to warehouse and large factory premises, where a building must be as fire-resisting as possible, and illustrated by diagrams where such a structure is far superior and cheaper in reinforced concrete.

After dealing with the theory of reinforced concrete, showing how to get the neutral axis, moment of resistance and the percentage of steel for various crushing stresses of concrete, models were shown illustrating a column and beam forming part of a perfect monolithic structure built up in reinforced concrete, which is practically impossible in any other construction.

Great stress was laid on the method of stirruping reinforcement so as to ensure that all the bars are placed accurately in position before any concrete is put in. This gives facility for thorough inspection and satisfaction on this vital point. This was illustrated by a small model showing double reinforcement in a beam with the necessary stirrups.

Mr. Burke also spoke on the respective merits of the bond and plain bar, showing the advantages of a bonded bar, and that the cost, if designed thoroughly, was no more than plain reinforcement yet with a safer resistance. From this he dealt with the subject as regards rusting action on the reinforcement, the chemical action on a reinforced concrete structure, and also on the electrical influence which could act on such a structure.

The lecturer afterwards dealt with the various aggregates suitable for reinforced concrete.

Passing from this he then went very closely into the costs of reinforced concrete work which he had recently carried out, illustrating this work by a number of lantern views.

The first example was the reconstruction of a two-storey galvanizing works, which had to be as fire and acid-resisting as possible. The works are 200 feet long by 180 feet wide, spaced into bays of 20 feet by 18 feet. The height is 16 feet 6 inches from ground floor to first floor, and from first floor to roof 14 feet. The loads to be carried were 2½ cwts. per square foot for first floor with certain positions on this floor to carry acid baths of 20 tons weight, and hoods 40 feet by 7 feet had to be slung from the ceiling. The roof was designed for 1¼ cwts., allowing in each case a factor of 4. The roof is a flat one, and a portion is kept level without fall for building pattern stores, &c. The superficial area is 8,000 yards (two floors). The contract schedule-price was £11,994. In this amount the following items were allowed for, which cannot be spoken of as forming part of the building contract. Cast-iron plates round baths, £500; fans for ventilating, £150; hoods for fumes, £320—total, £970; leaving the contract, in round figures, at £11,000, which is equal to 27*s.* 6*d.* per superficial yard, or practically 2*d.* per cubic foot.

In addition to the amounts included in the £11,000, £500 was provided for terra cotta and £150 for treating the front concrete wall, half of which could be deducted if it was required to be cheapened.

The most interesting part of these works was the comparison of the three schemes, so as to get the lowest price from open tender, and to show how each construction compares with the other.

In the first case a scheme was prepared on the steel frame system, the whole to be cased in with concrete afterwards. A design was then prepared making the steel work of light sections, such as angles, tees, built up at the makers' yard ready for fixing at the site, and in this scheme full value was taken of the concrete for the compressional members.

Later, it was designed in reinforced concrete, and the costs from actual tenders were:—Reinforced concrete building, £11,994; light steel frame, £13,210; steel frame cased in concrete, £14,200.

This clearly shows the saving in a reinforced concrete building where the building is of average size and the sheeting can be turned over.

Another interesting example was a floor built over wire ovens and prepared for taking five storeys.

The load was 2½ cwts. per square foot, and, including foundations, superstructure, 4-inch reinforced concrete walls, cement finished, and all steel casements and fittings, the cost was 25*s.* per superficial yard of floor covered, two floors only being erected.

Another work recently executed was a floor with a cantilever, 10 feet 6 inches long, built over ovens again, but in an existing building. The area covered was 800 yards, and the price when carried out for foundations 3 feet below the ground was 19*s.* 6*d.* per superficial yard.

For foundation work Mr. Burke gave a very interesting example, which he was called in to act upon in Liverpool some 18 months ago.

A site had been chosen for a public building, and after the contractors commenced excavating they found that hal the building would come upon a quarry partly worked, the other half on that which had been worked and had been filled up to 90 feet.

The design eventually carried out was the sinking of two concrete piers 90 feet to solid earth, and from these reinforced concrete beams, 7 feet 6 inches deep by 24 inches wide, were carried and cantilevered so as to take the new building.

The cost was about £1,000. What would the cost have been to go down to the solid, which would have been necessary on account of the chance settlement and the building breaking its back?

Another interesting example some time ago was a schem of precipitation and sludge tanks for treating 1,000,000 gallons daily of sewage. Space was very limited. A schem of tanks, 250 feet by 12 feet wide, with cast-iron plates fo the sides and bottom was prepared. The cost of this worked out to nearly £7,000.

A scheme of brickwork in cement was then arranged. I this the capacity could not be obtained without buying mor land. Apart from the land, the price worked out to jus over £6,000. It was then decided to use reinforced concrete having internal walls without ties 9 inches thick at th bottom, 6 inches thick at the top, 8 feet high, and this was jus over £4,500. The work when it was being constructed wa shown on the screen, and the author said he believed it wa the first set of tanks to be constructed to give such a capacity in this country in reinforced concrete.

A very interesting example of pile and roadway work wa given. This was designed for the English Velvet and Cor Dyers' Association.

They wished to enlarge their works, but they were handipped through having the river on one side, the goyt (for pplying the works with water) on the other, and beyond at the footpath and canal.

On the one side the river was dammed and a reinforced ncrete raft made. From this ran the columns and beams ir forming a new roadway over the river, and at the same ne carrying the buildings to be erected. On the other side -inch concrete piles were driven to carry the new buildings.

The superficial yardage of the work done was 1,250, and the tal cost was £2,800, including paving. The roadway was signed to take a 10-ton motor-waggon.

Another work designed was a new roadway, 36 feet wide, carry two traction engines and boilers passing side by side. e suspended area carried by columns, beams, and slab was 0 yards, and an equal portion had retaining walls to support e made-up road. The cost of this work was £2,000.

In railway bridge work one example was shown for Amberte to carry one set of rails. This was one central pier in e river, the width of which is about 120 feet. There are o 60-foot spans, and the width of the bridge is 12 feet. e cost, from tenders already sent in, is £850.

Mr. Burke then dealt with the treatment of reinforced ncrete for architectural effect.

He stated that this must appeal to everyone as very teresting and worthy of consideration in view of the fact at as time goes on this particular method of construction ust come more and more into favour. His own experience d been in buildings of the warehouse and heavy works type, ere the first consideration was utility, with very little scope r elaborate design on the elevation; but at the same time e question had been considered, and the following were his ews on the subject:—

Taking the ordinary works or warehouse building with the thodox piers, plinth courses, stone heads and sills, stone nds with cornices, parapet, &c., this type of building in inforced concrete can be very ably and economically treated. e concrete columns on the outside walls would be designed piers of the necessary proportions to suit design, and the ame beams between same utilised as window heads with ntinuous band. Between the framework a light 4-inch inforced concrete wall could be constructed so as to be nnected with the columns and the frame beams; the window enings and sills would, of course, be framed in the sheeting, d in case of any moulding, &c., being required the jambs ould be left rough and the moulded work formed at another eration.

In the case of rustication or V-joints being required in the ocking out of the piers, this can be done by ribs of timber ing fastened on to the sheeting before same is fixed, care ing taken to prepare the timber with a good wash, and also at these strips are slightly bevelled so as to ensure clean riking. The ballast for this class of work should be very e and of granite if possible.

If the elevations are rubbed so as to ensure all voids being osed, after the sheeting is struck, a very good job is assured, d the difference from stone is hardly noticeable.

If a combination of brick with stone dressings is required, e framework may be carried out exactly the same way, but e 4-inch reinforced concrete wall would be substituted by a inch brick one, and the introduction of moulded work or rra-cotta cornices is a simple matter.

Suppose, then, the treatment of a Classic building in inforced concrete is reviewed:—Consider the monolithic ethod. The building of the main walls would be a very mple matter, as any details in the way of cornices, blockingt and the like, as well as panelling, could be easily executed the sheeting.

Then turn to a shaft with a Corinthian capital. You ill see instantly that to carry out the shaft alone satisactorily would be a very difficult job, and as far as the pital is concerned would be practically impossible.

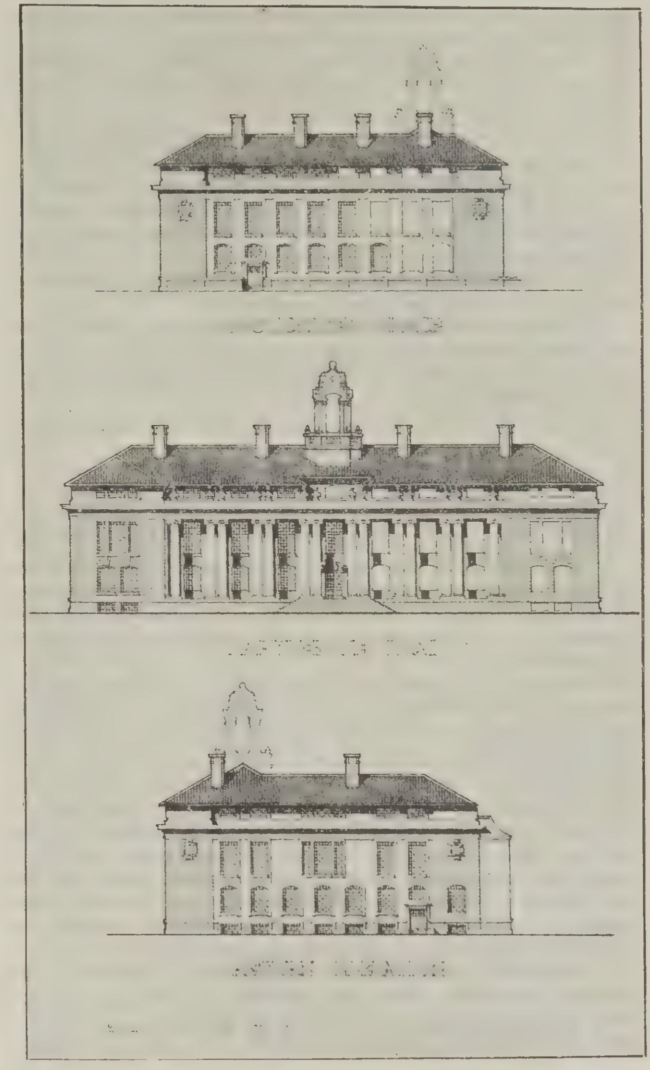
This now carries us to the method of casting independent ocks which would be placed in position in the same way is now adopted with terra cotta and reinforced concrete. he question of carving then arises. Taking it for granted at such a front could not be executed in concrete alone, the troduction of stone for reasons stated becomes necessary. onsidering the combination of concrete and stone blocks, the o substances would have to be matched both in texture and colour to be at all satisfactory. This, of course, could done with care; but supposing that a suitable appearance the work on completion be attained, we must not lose sight the probable change that would take place through the posure to weather and general atmospheric conditions. rom this the architect would then have to decide whether it would be worth while taking the risk (which would certainly exist) of adopting reinforced concrete with the combination of stone to save the extra cost which an entire stone front would incur.

In conclusion, Mr. Burke illustrated by lantern many examples of work he had carried out.

The lecturer was accorded a hearty vote of thanks.

An interesting discussion followed. In reply to the questions, Mr. Burke stated that he always specified the best English cement to be properly aerated and slow setting. He did not like coke breeze or slag for the aggregate. He preferred broken bricks. The concrete in the proportion of 3 : 2 : 1 should be very liquid and well rammed. Although theoretically spiral reinforcement was best, he preferred to use ⅜-inch bent angle-rods to connect the vertical bars. It was not necessary to paint the steelwork previous to encasing it. He urged builders when tendering to allow for plenty of strong timber for casing—at least 33 per cent., as, although the sides could usually be struck after ten days, the bottom supports sometimes took three or four weeks.

At the business meeting previous to the lecture two new members and one new associate were elected.



MARYLEBONE MUNICIPAL BUILDINGS.—FOURTH PREMIATED DESIGN. By Messrs. Warwick & Hall.

THE INSTITUTION OF MUNICIPAL ENGINEERS.

At a meeting of the Council held on November 22, the following applicants were recommended for admission:—

(*a*) To Membership: Albert Light, surveyor, Wharfedale R.D.C.; C. F. Hodgson, surveyor, Otley U.D.C.; F. Hatcher, deputy borough engineer and surveyor, Neath. (*b*) To Associate Membership: F. J. Reilly, surveyor's office, Cockermouth U.D.C. (Under the new by-laws these elections will be ratified at the next Council meeting if no written objections are lodged within fourteen days.)

New Members, &c.—From the applicants recommended for admission at the last meeting eight members and four associate members were elected.

Examinations.—The report of the Superintending Examiner giving the results of the examination held November 2, 3, and 4 was received. The results are as follows:—

A. D. Barron, diploma in municipal engineering (covering the subjects of buildings, highways and sanitation), with special mention for excellence of work.

R. Wilson Jones, certificate in electrical and mechanical engineering as applied to municipal work.

J. Reed Edwards satisfied the examiners in building and structural engineering as applied to municipal work.

Henry Peake and T. S. G. Menezes satisfied the examiners in the general paper.

Council Meeting.—It was decided that the next Council meeting be held on December 16.

BY-LAWS AND BUILDING REGULATIONS.

A MEETING of the Architectural Association Camera, Sketch and Debate Club was held at Tufton Street, S.W., on Thursday, November 30. The proceedings were opened by the following short paper from Mr. F. S. Chesterton:—

I feel some diffidence in dealing with this subject for many reasons; for one thing, any paper which deals with such an important matter cannot cover the ground more than partially and superficially. Then, again, building regulations have been amplified, extended, and incorporated in various Acts which have special application to certain towns and districts. I do not propose to even attempt to enumerate these Acts, but to deal with the average by-laws that are prevalent in the rural and urban districts which have adopted them. It will also be my endeavour to avoid as far as possible being informative in the circumstance of addressing an audience far more knowledgable in these matters than myself.

As to the necessity for the regulation of buildings, this seems to have been taken for granted for centuries, but in a very general fashion. I think I am correct in saying that one of the earliest building regulations was an Act of Elizabeth prohibiting the enlargement of London, as the size was considered to be rather alarming—an opinion held since, I believe. The Fire of London seems to have resulted in the restriction of timber buildings, and I am inclined to think that this had a share in fixing the sash window brick house as the type for town building. But I cannot trace any appreciable endeavour to deal with building in country districts.

Now, as to the advisability or otherwise of having regulations, one might argue for days. As a mere personal and primal preference I have a leaning towards anarchy. If people choose to build homes that fall down it devolves upon the inhabitants to take an intelligent (and anxious) interest in building construction. In course of time, public knowledge would result in the survival of the better work. A plausible case can be made out for no by-laws. Some districts have none, and it can be contended with truth that in these districts the buildings are customarily no worse than in those which are controlled. It may be said against this that the result of regulation, as a whole, is to create a general average or standard of work up to the by-law standard, below which even a jerry builder would feel it impossible to descend. To have no control whatever is, you may say, individualism run mad, but whatever it is there is no need to consider it, because whether one likes it or not, the tendency is more and more towards regulation, and it is our obvious duty to see that these regulations are as suitable and useful as they can be made.

The Public Health Act of 1875 is really the *fons et origo* of the by-laws under which we work. It always seems to me a most curious and very English feature of the by-laws that they are adoptive, and that it is only a mixture of tact and good fortune that they are not infinitely worse than they are. The model by-laws which are suggested by the Local Government Board are some thirty-five years old, and they are remarkably good—doubtless because the R.I.B.A. had some share in the drafting. They have been added to by many local bodies with consent of the Board, sometimes improved, often not: but, take them all round, it would be difficult to compile a better and more sensible code of regulations. Some of the sanitary clauses are out of date in view of our present knowledge, but then I much doubt if little more than a yea or two does not alter the views of the sanitary experts— had almost said tyrants.

The attacks made upon the by-laws during the last fiv or six years—practically since the "Garden City" move ment was started—have taken various forms, but are chiefl directed against the road clauses and the structural clause There are depressing photographs shown of what are calle by-laws roads with dreary terrace rows of identical litt houses.

Personally, I don't like those sort of streets, but I r member an old country builder once calling my attention to street where even the chimney pots were so carefully in line that they were like a regiment of soldiers—he thoug it magnificent. But this had nothing on earth to do wit by-laws, and to use it in a campaign for power to mal narrower roads seems to me unfair. With the greate respect to the garden cities, I think it is hardly proved th roads with grass borders are less costly of upkeep and— neglected—better to look at.

Then I have seen photographs of a wreckage of timb showing someone's cottage destroyed by a local authority. was very sad and annoying, no doubt, for the owner of t wreckage, but I feel the ideal for which he suffered is wrong one, and it is on these grounds that I feel the stronge reasons for defending the by-laws. The outcome of all t abuse of the laws was the exhibition at Letchworth, whi set out, *inter alia*, to show the building world what cou be done if only the authorities did not stand in the way, an after seeing it, I was still on the side of authority. In fa the impression I gathered was that building with bricks w not really appreciably more expensive, and always the was the feeling that their ideal of building was radical wrong. It did not aim at permanence, and that is precise what good building should aim at.

Having said so much in their favour, I feel there a some of the building clauses of most districts which are op to improvement and amendment which I should like to s dealt with.

One very hampering clause is that which prescribes t window to be one-tenth of the floor area. On the face of it reasonable provision, in practice it is a most exasperati requirement, for it takes no account whatever of aspect the height of the top of the window from the floor. In attic it is possible to put a window low down with o tenth of the floor area, which would pass, while a small window high up, giving better light and ventilation, wou be condemned. Then, again, a south window will give m light in proportion than an east window.

Another ridiculous clause is that requiring window fram to be 4 inches from the face of the wall. This, in practice, generally not noticed, but I have been made to do it. T clause should be struck out, as it is quite useless, and one knows whether it is a precaution against fire or water.

The clause requiring party walls to be carried up ab the roof is, no doubt, well intentioned, but is disastr in any effort to make a group of cottages or houses presen decently reposeful roof. The spread of fire, which it designed to prevent, would be greatly safeguarded by insisti that the roof covering is bedded direct on top of the wall groups of a limited number of houses.

I was given a suggestion (on which I have more th once acted) for getting over this clause, which may be interest. The case was a gable, the apex of which I want to be in the centre of the party wall in grouping a small r of little houses. By putting concrete slabs not less th 1 foot 6 inches from the ridge across the party wall a terminating the rafters below these slabs I maintained tha was giving the 15 inches above the roof, and filling in the sp above the slab with concrete and bedding the roof tiles on gives a better fire protection than any other method.

I have neither time to comment upon nor have been able collect all the variations of the model by-laws—they are numerous—but one or two that I have had experience strike me as tending in the wrong direction. One is t insistence of 9 feet in height in attics for two-thirds of t floor area with 5 feet minimum. This is unreasonable, a makes it very difficult sometimes to fully utilise the cu contents of a small house. To start with, 9 feet is too hi for a minimum, especially when coupled with no provisi for height of the window above the floor, and to restrict it two-thirds with a 5 feet ashlar height is to render usel space which would be valuable for furniture and boxes. still worse provision also obtains where no roof is allow to cut in, and rooms are to be full height. This will ten m certain, to typify the flat roof, and take away character d picturesqueness, for no commercially-minded builder ll put up a decently pitched roof unless it is useful for reasing the accommodation of the house.

Another regulation which I met with is, in my view, ill- ceived. It insists on the ground floor of any building ng 6 inches above the crown of the nearest road. In the vn this would not be any matter for comment, but when is applied to the outlying country which is embraced in administrative area it is absurd. In the case in point, site was the side of a hill, on the top of which was the d. To comply with the by-laws meant the unfortunate ant being 3 feet or 4 feet above his garden at the back, th rods of useless brickwork to get there. This was derated by personal appeal, but only slightly. There are er instances which one could give of the manner in which tain clauses interfere with a rational building, but the mber of occasions is, in comparison with the possibilities, t very considerable. This brings me to the second aspect the question, and the more important—namely, the ministration.

The question of administration is so involved with the ole of our local self-government that it is very difficult make any criticisms or suggestions that have not the dis- vantage of involving more consequences than are relevant the subject of building. The exact relations between the al authority, which is charged with the administration, d their officer or surveyor vary greatly, not only in the per- ality of the surveyor, but also in the degree of indepen- nce presumed by the manner of appointment.

I suppose most of us will admit that the surveyor we have st appreciated is the one we have never met—and who s not even visited the job. These admirable men have lly been most discerning, seeing that their confidence in is so well grounded. There is, however, an element of nething very like the best solution of the supervision of the thorities in this. The aim of the by-laws, after all, is at the buildings in a district are to be well built and althy dwellings. It is *prima facie* the object of a respon- le architect to have the same aim, and I think that the ationship of local authorities to architects would be in ways more pleasant if this identity of aim were to be ognised.

There are ways and ways of exercising supervision, and assumption (which is not unknown) that anyone with y building work is a potential criminal is not only an natural one, but is so annoying that strained relations the inevitable result.

The London Building Act I have not attempted to deal th to-night, because it is altogether too complex, though, in ssing, I feel bound to say that it is a remarkably able, mprehensive Act in most respects, and the administration so different that I do not propose to say much about it, cept that it has some points which are helpful to suggest- g improvements elsewhere, though in suggesting improve- nts one is touching on delicate ground, and it is necessary walk like Agag.

This is one aspect of the supervision of buildings by icials which is of importance to us in connection with the eat and serious responsibilities under which we work.

The responsibilities are so great that it would indeed be satisfaction to have a portion of the burden, at any rate, ared in some degree by someone of capacity. It is here at, on the whole, one finds such support somewhat lacking, d it is difficult to precisely define the cause, and still more fficult to say how far an increase of supervision would not rry with it drawbacks and disadvantages.

In this connection a sharp distinction must be drawn tween London County and outside (and doubtless, again, tween other large towns and the country districts). In ndon there is a much more close scrutiny of actual build- g construction. This is partly due to the status of the strict surveyors, and also, I think, to the fact that the y, being built, the new works are not too numerous to ake such supervision impossible. I know from my own perience several districts where the surveyor pays many sits a week, and the supervision is practical to a large tent—insistence of grouting in brickwork, to quality of otings, bearing of bressumers, &c. There is a considerable xture of "The Act" with some of the visits, however, and ore than one surveyor has confided to me that he did not pect or find the best contractors building under architects ing bad work, but that architects gave a good deal of trouble ing to technical infringements of "The Act." The bad rry builder, on the other hand, knew his Building Act to perfection, and considered that he did his duty to himself and mankind if he knew nothing else about building. I do think, however, that, take it all round, the buildings put up in London are better than they would be without supervision of the authorities in those cases where no architect is in charge.

Outside London and in the country the by-laws seem to me to have more effect on form and dimensions than on quality, and if it happens, as I hope and believe it may, that a better standard of building is demanded by the public, this most desirable result will be achieved, and must be achieved, by the employment of architects. The control of building by architects is steadily growing, and it will depend how this has good results as to whether there will be any future extension of the area of official supervision, an extension which, on the whole, I should deplore, not the least on account of the added work which would fall upon us, without, as I think, any lightening of the load of responsibility under which we work now.

Many a point can be settled by common-sense, and if there were cases which any architect or builder considered to be harshly dealt with there should be somebody to appeal to who could be relied upon to possess such a commodity. Under the London Building Act this body exists in the Tribunal of Appeal. Why cannot there be other Tribunals of Appeal without the cumbersome machinery which takes time to set in motion?

The sort of body that I should like would be a panel of architects who are actually in practice, or recently have been, to whom, when some red tape obstruction has cropped up, one could go and say in effect: I want to do this; the people on the other side say I must not. What is your view? The incident can then be disposed of summarily, and merely technical points waived aside by a man taking a broad view.

Mr. Gilbert Jenkins, who followed Mr. Chesterton, in referring to the necessity for regulations, said that in the case of building work carried on without the supervision of an architect, it seemed to him that the Building Acts should be amended in order that greater—rather than less—control should be given to the authorities. In London all kinds of questions relating to buildings were being left more and more to the discretion of the L.C.C. As a result the architect never knew what his exact position was, and this led to delay and his being given a great deal more trouble than was necessary. Particularly did this apply to new theatres. In one instance within his knowledge the London County Council had the main exits altered five different times, and on the night of the opening they were still not approved, and the building was opened unapproved. In another case, after £3,000 had been expended on alterations to meet the Council's requirements in view of using a building as a theatre, the proprietor was coolly informed that the buildings never could be made to answer their standard, although the whole of the works had been done at their instance to meet their views of fire protection. He himself had been fortunate, as he had generally found that the officials were very amenable if dealt with nicely. In dealing with local authorities in the country the surveyors were often rather afraid of the architect, as he generally had greater knowledge of good work than they had themselves. It was sometimes rather difficult to make them see improved methods in sanitary science and construction. For instance, under the old by-laws it was allowable to discharge a bath into a rain-water head. This now is considered to be absolutely bad. There used to be also considerable difficulty in convincing local surveyors and sanitary inspectors that rain-water pipes should be disconnected from the main soil drains as far as possible. There was another point worth noting. When a client was carrying out a large building in the country, he was liable to be victimised over the question of abnormal traffic on the roads. Various cases had come under his notice where there were four or five contractors at work on the same estate, and the authorities complained that the roads in the neighbourhood had been cut all to pieces, and that large sums of money had had to be spent upon the highway afterwards. If no precautions were taken beforehand the authorities were enabled to convert a bad local road into a first-class county road, and make good the neglect of the previous twenty years at the unfortunate private owner's expense. In one case where that happened there could be no denying that the traffic had been abnormal for that particular country road. And although there were clauses in the contracts that each was to make good the road, the owner found it impossible, without several expensive legal actions, to bring the responsibility home to any one of the firms engaged, and he only recovered a small proportion of what he was advised to pay in order to settle the matter. He suggested that it was a very good method for the architect to insist on the contractors going to the local or county authority before they commenced the works and arranging to pay so much per ton (he had heard of 3*d*. being offered and accepted) to cover any damage which might be caused to the highway. Quite probably the whole amount would prove to be under £100, and a claim of £500 or £600 be thus avoided. Mr. Chesterton had alluded to roads with grass borders in garden cities. He would instance Bournemouth, where roads without kerbing or channelling were general, and the ratepayer was saved thousands of pounds. The addition of wide grass borders would give an extremely picturesque appearance, and, moreover, decrease the cost of maintenance. There could be no doubt that there was a considerable call for the revision of by-laws with a view to permit buildings of ferro-concrete in London. There were, indeed, all sorts of provisions in the London Building Act which are becoming antiquated. In the erection of the Ritz Hotel, for example, although it was a steel-framed structure, the walls had to be made of the full thickness required for external walls, and the existence of the steel frame was entirely ignored. He did not agree with the suggestion that a varied form of Tribunal of Appeal with easier access and shortened procedure should be set up, as in his opinion the Acts and by-laws should be made perfectly clear and no discretion be left to the authorities as to enlarged ideas to be read into them. It would then be easy for the architects to settle all points with the surveyors, and no appeals would be necessary.

Mr. Noel D. Sheffield remarked that he did not think Mr. Chesterton could have been quite serious when he suggested that things ought to be left in a state of anarchy. The matter of building regulations must not be looked at entirely from an architect's point of view. In speaking of housing in the country it had to be recognised that it was impossible to get high enough rent out of an agricultural labourer for an ordinary rate of interest to be secured on the outlay. There seemed to be no reason why right away from busy centres weather-board dwellings should not be allowed, and why the height of buildings should be made to comply rigidly with the existing regulations. The drainage now insisted upon for country cottages was fit for a palace. He himself felt in sympathy with the "Garden City" idea that they did not want 40-foot roads. It would be, he believed, a very good thing if some new provision were made in the regulations as to party walls; the provision might be somewhat on the lines of the present clauses in the London Building Act. In the country districts the ideas as to party walls are in a state of chaos. It was to be deplored that so many of the officials charged with the administration of the by-laws are without an intimate knowledge of architecture in practice. That fact produced a tendency to take a purely official view of the administration of the Acts. If possible, they wanted to restrain the London County Council from appointing district surveyors in the future. There was an idea abroad that eventually these surveyors will become the paid servants of the authorities, instead of depending on their fees, as now. Such a possibility was to be deplored. Under the present conditions, district surveyors in London possess a big discretion under the Building Act; but it is sometimes rather difficult for them to get rid of their obsessions. Particularly does this discretion seem too much in respect of public buildings like theatres. It was possible to meet with district surveyors with views actually contrary to those of the London County Council.

Mr. Adams alluded to the difficulties sometimes experienced in London where one had to run the gauntlet of the L.C.C. and all its branches and of the district surveyor. Sometimes rural by-laws could show good points to the London Building Act. The existing Tribunal of Appeal was a most cumbersome affair. If only it were possible to get points settled quickly it would be very much to be desired.

Mr. Edwin Gunn mentioned that the ancient Egyptians had by-laws, one of which was to the effect that if any builder builds a house and the house shall fall, that builder shall die. It seemed to him the London Building Act was a model in so far as everyone could know where they stood. Such was not the case with rural by-laws, which all look the same as being based on the same model, but which really often contain some verbal alteration making them entirely different on those particular points. Sanitary by-laws changed with fearful rapidity. He quite agreed that the Cottage Exhibition at Letchworth showed there was nothing to beat bricks and mortar. In an absolutely rural district, however, there was much to be said for the use of weather-boardin Country by-laws were certainly open to objection; one of th most stupid regulations was that prescribing window fram to be 4 inches from the face of the wall, as was also th insisting on the ground floor of any building being 6 inch above the crown of the nearest road. The by-laws, of cours represented the extremely small amount of control whi the authorities can have over public health. In this count the extraordinary number of drawings which are required the authorities to be sent in is becoming an awful tax architects. In America one set of plans were passed fro committee to committee or authority to authority, and d for them all.

Mr. Stanley Hamp, the Chairman, after remarks Mr. A. G. Tickle, Mr. A. E. Bullock and Mr. T. L, Dal said that after what had been said that evening he cou not help feeling that there ought to be no by-laws at a It seemed to him that the best by-law would be that eve man who built should employ an architect.

Mr. F. S. Chesterton, in replying to the vote of thank said that he was all against cheap buildings being allow in the country, for he considered that part of the obligati attaching to land-owners was to house the country peop What he had to complain about the London County Coun was that they could not be got to see that a delay of s weeks or so in considering and approving plans was serious matter. With regard to Mr. Jenkins's advice as coming to terms with the local authority as to compensati for abnormal traffic on roads, he could not see the justice paying for damage before it was done. In a job which w just about to be commenced, and for which he was arch tect, the local authority had approached him with some su proposal; but he had no intention of paying a rate per in advance. In consequence of the discussion he had son what altered his views as to discretionary powers for distr surveyors.

ARTS AND CRAFTS.

IN opening an arts and crafts exhibition at Bradford Saturday last, Mr. J. Cobden Sanderson, of Lond strongly repudiated the belief that the three great arts w painting, sculpture, and architecture. He said that one of first aims of the Arts and Crafts Exhibition Society was to volt against the academic conception of art as consisting of production of painting, sculpture, and architecture. Th were not the three great arts. His view was that the full c ception of art embraced the whole of life. Whilst those gaged in the minor arts could not compete successfully w the great industries, they could transfer some of the touch imagination to the great industries which would make th appear to be what they really should be—works of art.

Correspondence

[The Editor will not be responsible for the opini expressed by Correspondents.]

King Edward Memorials.

Sir,—May I ask for the usual hospitality of your colu to enable me to state that, by desire of her Majesty Qu Alexandra, I have undertaken to collect particulars, publication in due course, of all memorials, of whatever scription, at home, in the colonies, and abroad, to his Majesty King Edward?

I shall be much obliged, therefore, if those connected w the furtherance of such memorials will, as they are c pleted, kindly communicate with me, when I shall be g to send particulars of the information required.

James Gildea (Colonel).

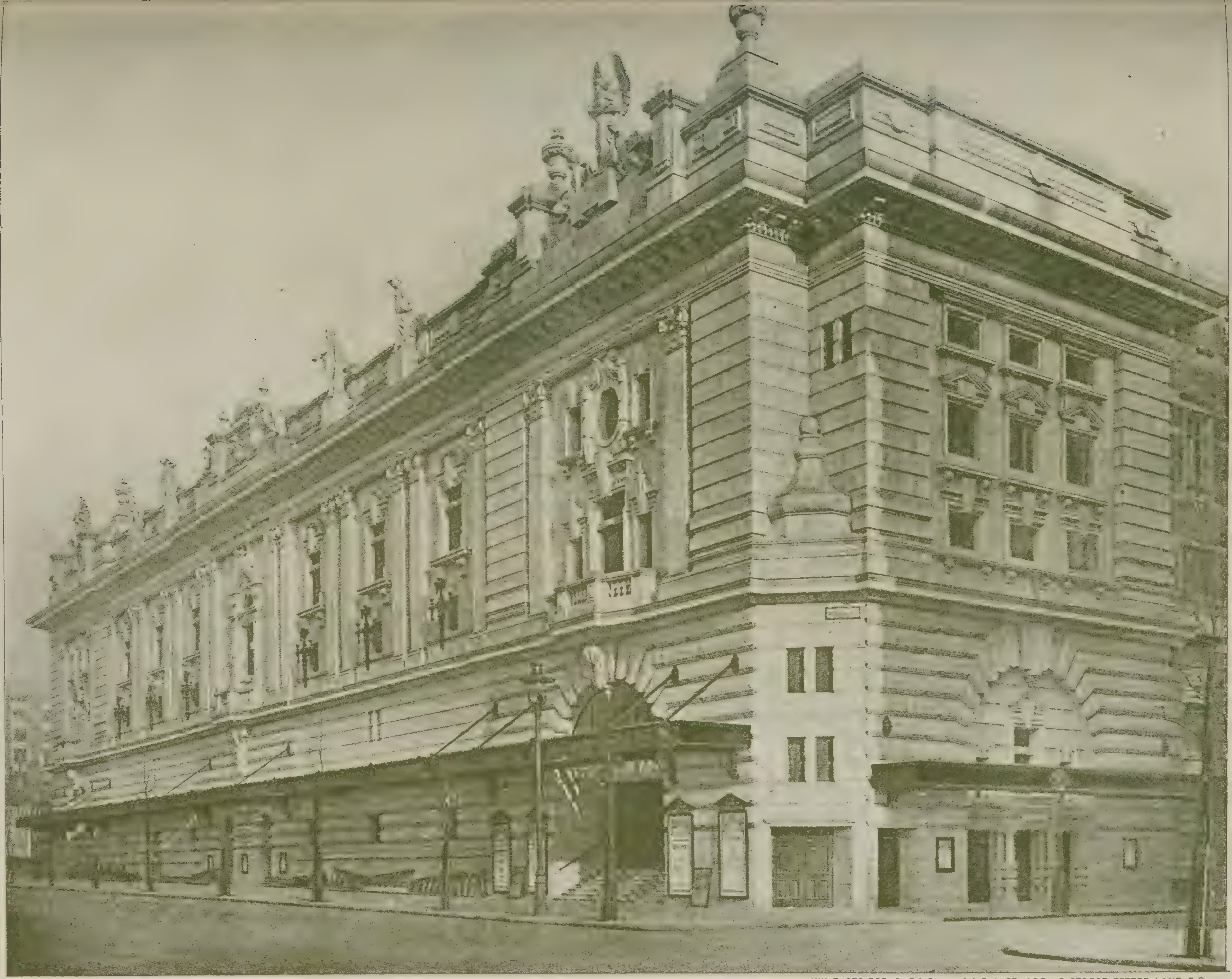
11 Hogarth Road, London, S.E.: November 30.

Port of London Offices Competition.

Sir,—In view of the date—the 16th inst.—by wh queries are to be forwarded, may I—by your kind permiss —ask all competitors to join in a request that the perspec view be postponed to the final competition, and that the th elevations and the two sections be reduced to one each? am, &c.,

Πλο.

Westminster: December 4.



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THE LONDON OPERA HOUSE, KINGSWAY.

Mr. BERTIE CREWE, Architect.

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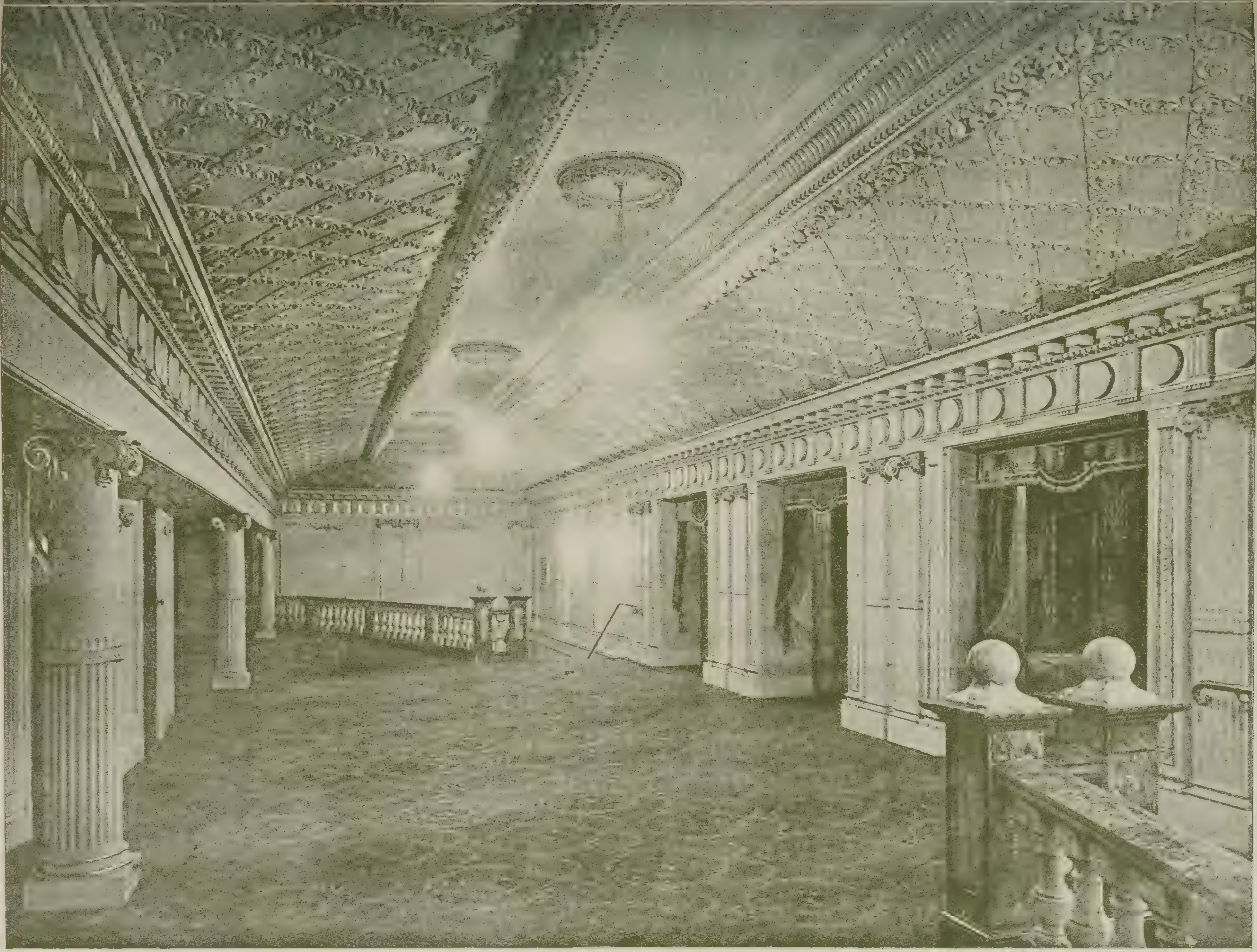

THE LONDON OPERA HOUSE, KINGSWAY: INTERNAL CORRIDOR.

Mr. BERTIE CREWE, Architect.

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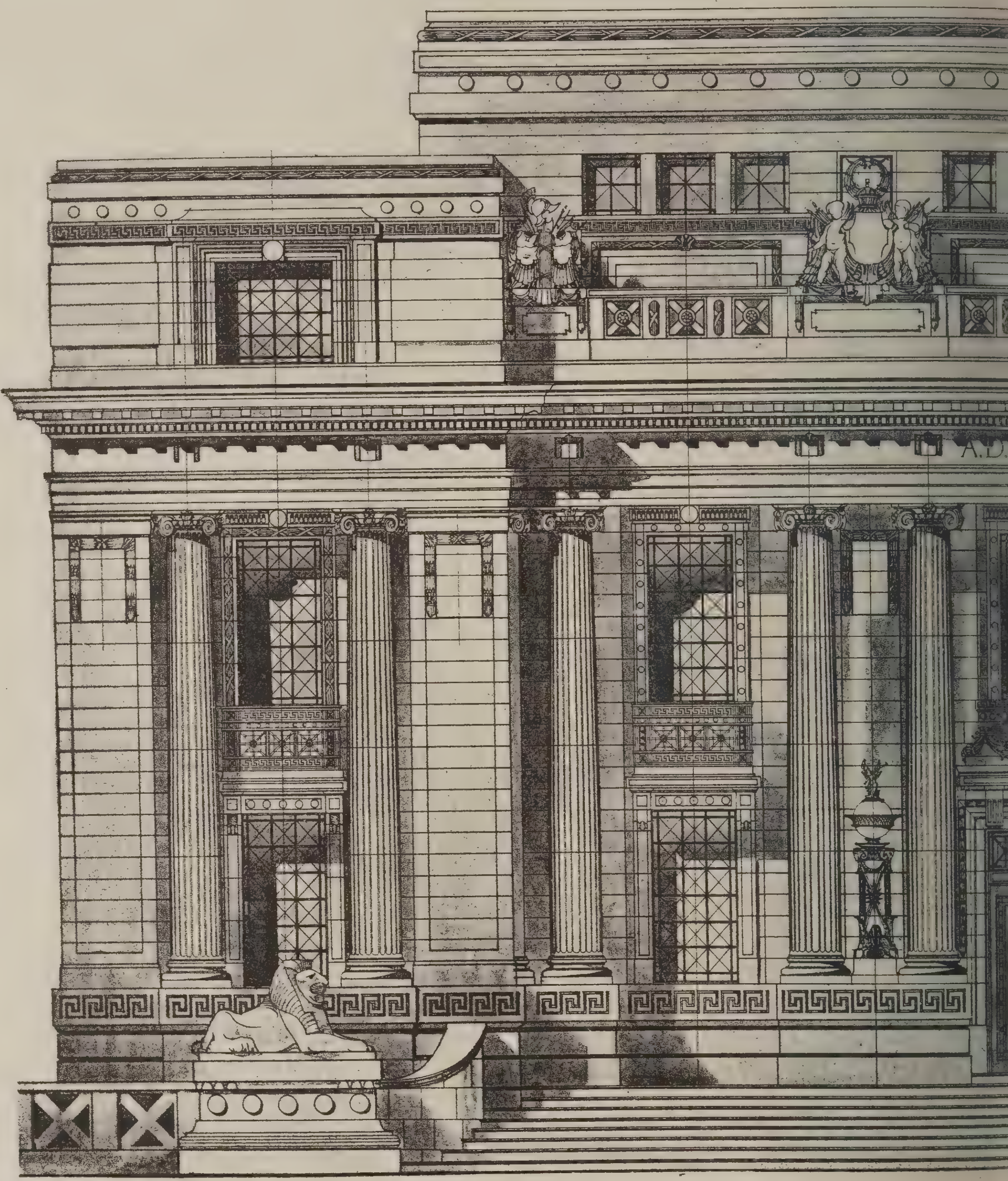
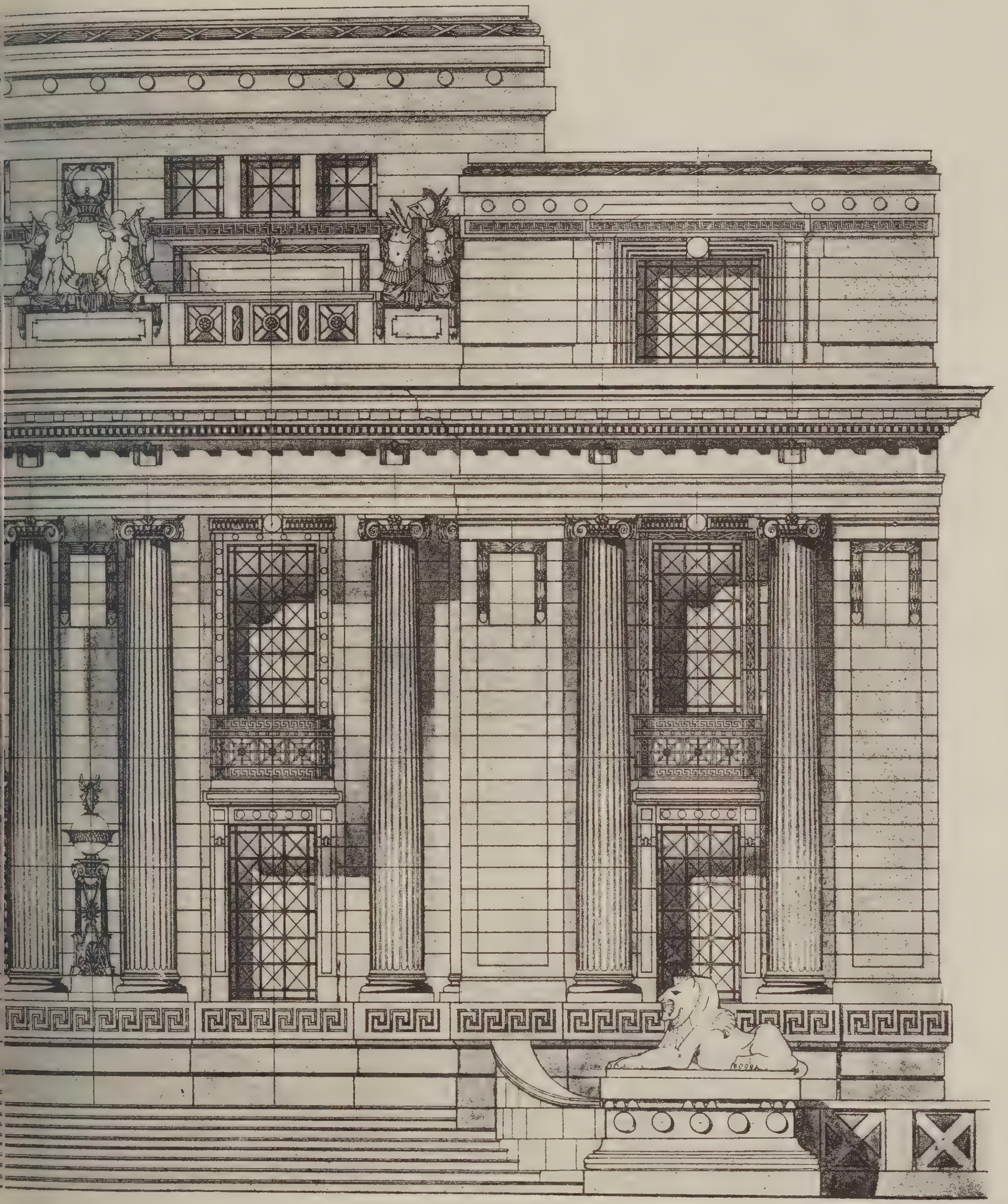


DETAIL M

MARYLEBONE MUNICIPAL

Mr. T. EDWIN



FRONT

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DESIGN PLACED FIRST.

A., Architect.

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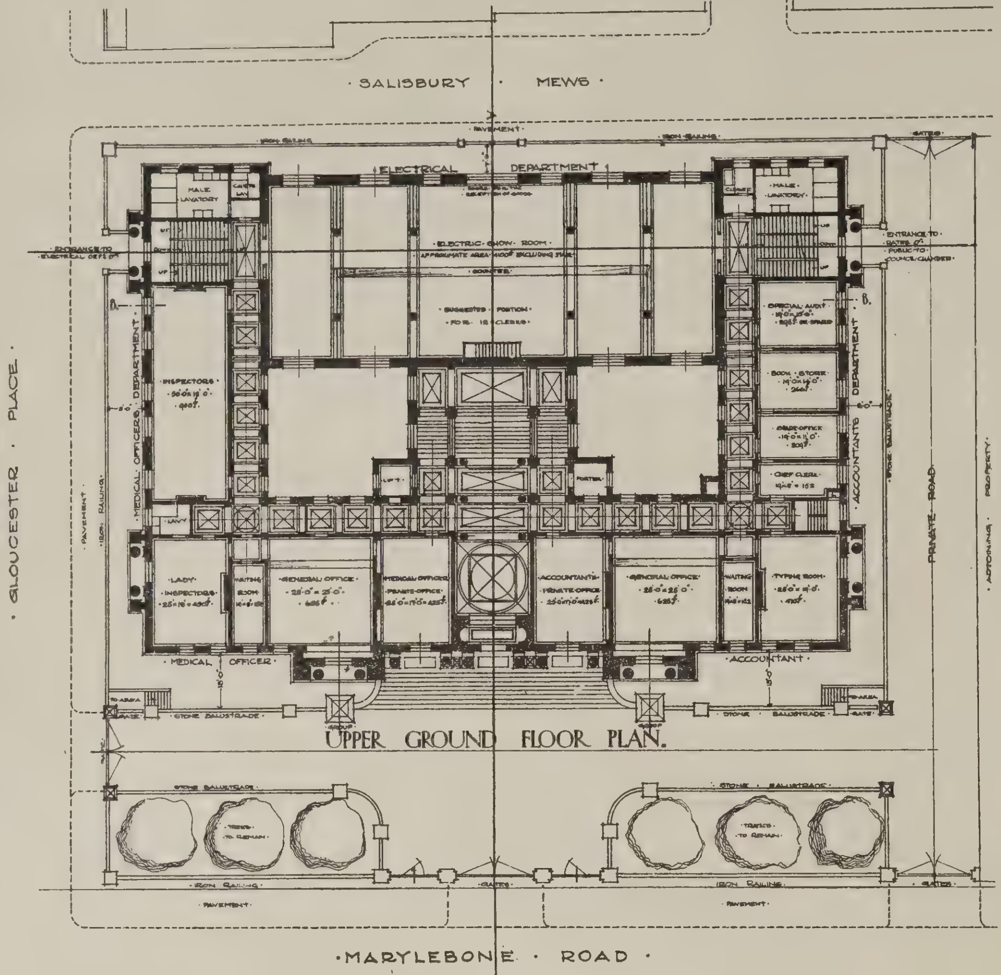
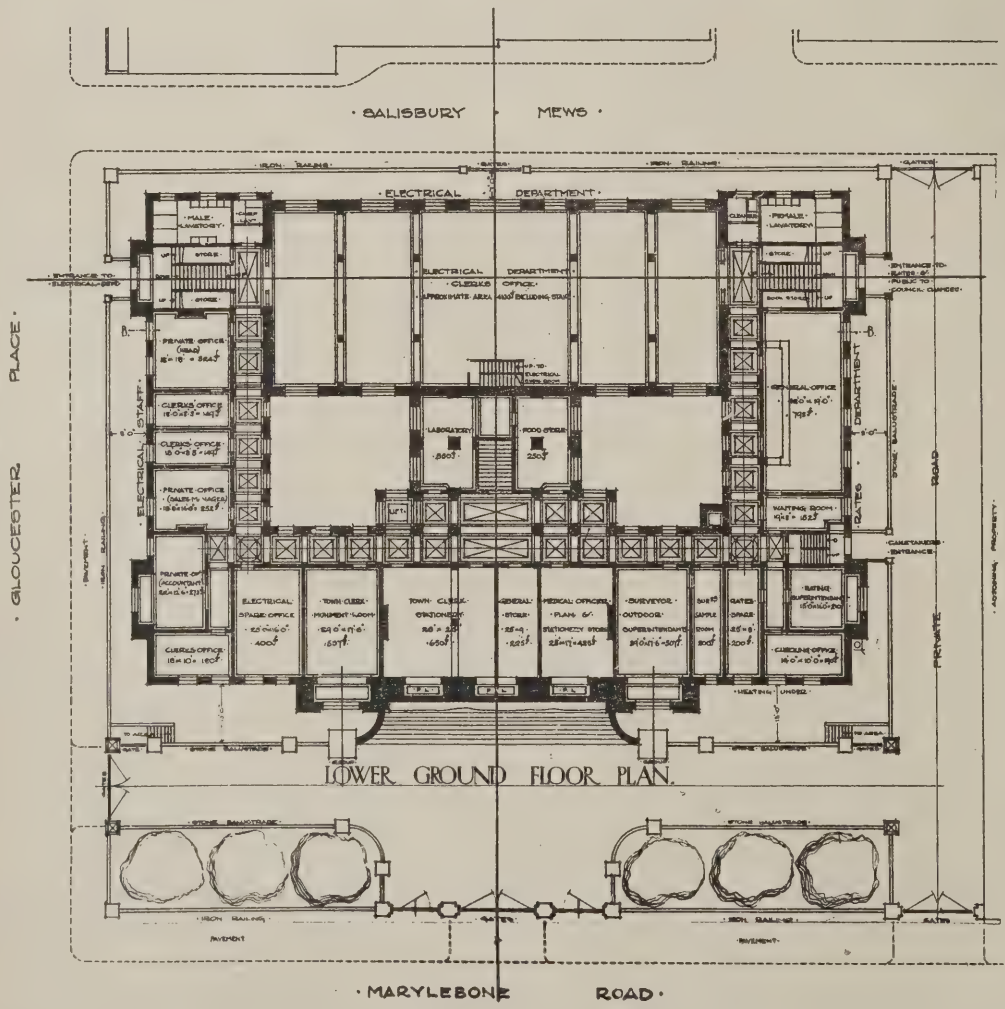
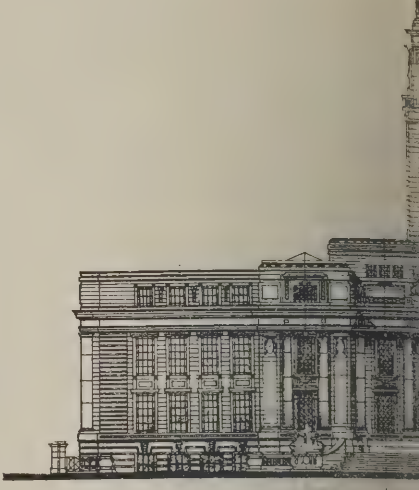


UPPER GROUND FLOOR PLAN.



LOWER GROUND FLOOR PLAN.



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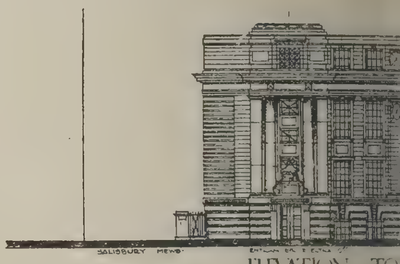

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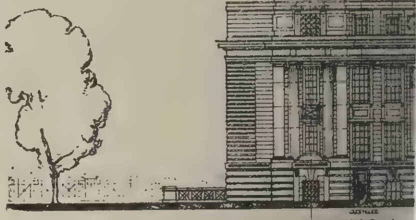

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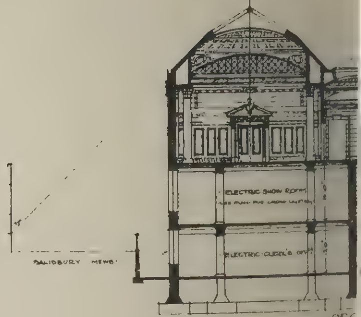

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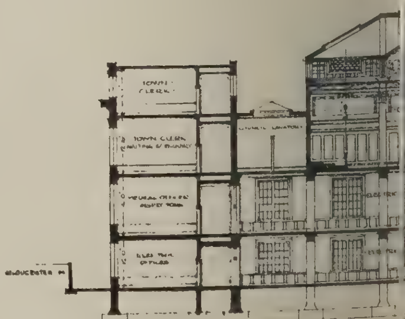
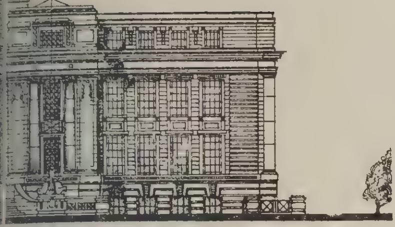


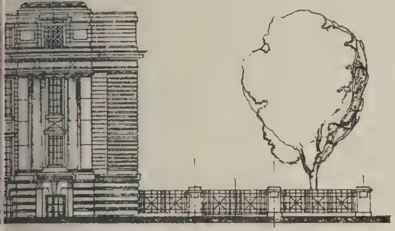
SEC

MARYLEBONE MUNICIPAL

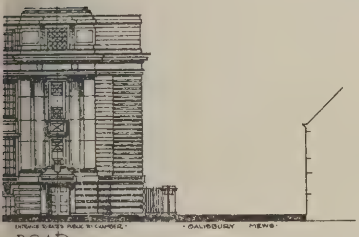
Mr. T. EDWIN



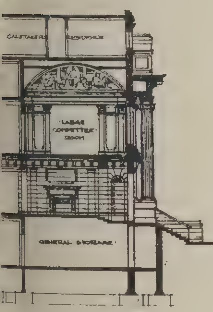
ROAD.

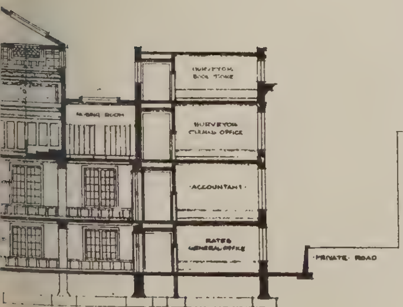


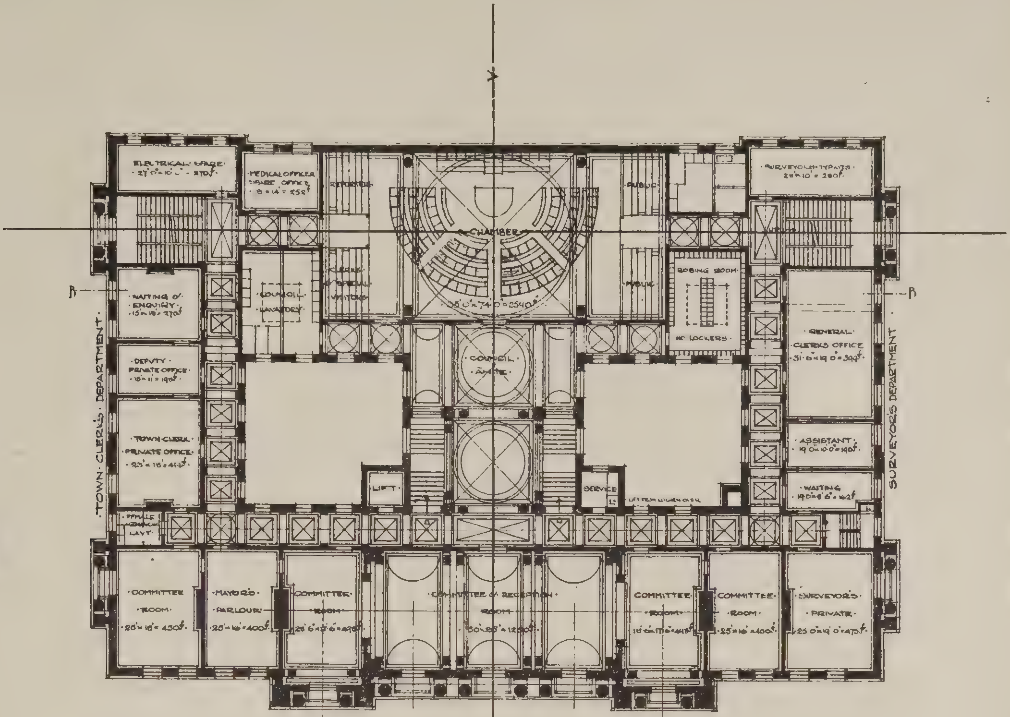
R PLACE.



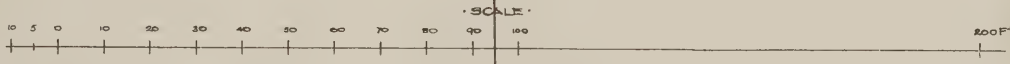
ROAD






ELECTRICAL STORE 27'0"×10'0" = 270ᶠ
MEDICAL OFFICER SPARE OFFICE 18×14 = 252ᶠ
REPORTERS
CHAMBER
55'0"×74'0" = 2540ᶠ
PUBLIC
PUBLIC
SURVEYORS TYPISTS 28×10 = 280ᶠ
WAITING & ENQUIRY 15×18 = 270ᶠ
COUNCIL LAVATORY
CLERKS & SPECIAL VISITORS
ROBING ROOM
LOCKERS
DEPUTY PRIVATE OFFICE 18×11 = 198ᶠ
COUNCIL ANTE
GENERAL CLERKS OFFICE 31'6"×19'0" = 599ᶠ
TOWN CLERK PRIVATE OFFICE 23'×18' = 414ᶠ
ASSISTANT 19'0"×10'0" = 190ᶠ
WAITING 19'0"×8'6" = 162ᶠ
LIFT
SERVICE
LIFT FROM KITCHEN OVER
FEMALE COUNCIL LAVY
COMMITTEE ROOM 25'×18' = 450ᶠ
MAYOR'S PARLOUR 25'×16' = 400ᶠ
COMMITTEE ROOM 28'6"×17'6" = 498ᶠ
COMMITTEE & RECEPTION ROOM 50×25 = 1250ᶠ
COMMITTEE ROOM 15'6"×17'6" = 418ᶠ
COMMITTEE ROOM 25×16 = 400ᶠ
SURVEYOR'S PRIVATE 25'0"×19'0" = 475ᶠ
TOWN CLERKS DEPARTMENT
SURVEYOR'S DEPARTMENT
B
B

FIRST FLOOR PLAN.



NOTES

THE ONLY SUGGESTED ALTERATION FROM THE CONDITIONS ISSUED IN THE ALLOCATION OF DEPARTMENTS IS THAT Nos 5 TO 8 OF ELECTRICAL DEPARTMENT IS GROUPED WITH THEIR CLERKS UPON THE LOWER GROUND FLOOR OFF GLOUCESTER PLACE THUS KEEPING THE WHOLE OF THE CLERICAL WORK TOGETHER ; AND THAT THE RATES ARE PLACED IMMEDIATELY BELOW THE ACCOUNTANT UPON THE LOWER GROUND FLOOR TOWARDS PRIVATE ROAD WITH ITS SEPARATE ENTRANCE ;

IT WILL BE SEEN THE ALLOCATION OF DEPARTMENTS CAN EASILY BE REVISED IF REQUIRED

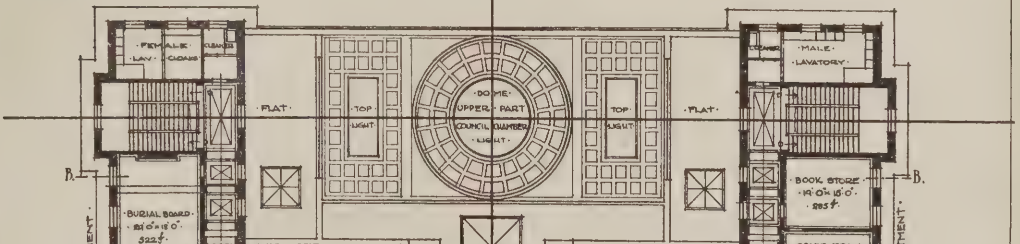
MATERIALS

EXTERIOR ; IN PORTLAND STONE
FLOORS ; FERRO-CONCRETE AND WOOD BLOCK
MAIN STAIRCASE ANTE ROOM Dº MARBLE
COUNCIL SUITE ; IN HARDWOOD
CORRIDORS HARDWOOD PANELLING
ALL LAVATORIES TILED THROUGHOUT

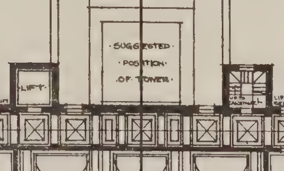
COST

BUILDING GENERALLY

988,341 CUBIC FEET AT 1/2ᵈ PER FOOT CUBE	£57,653 - 4 - 6
TOWER ; IF EXECUTED AS SHEWN 38,396 CUBIC FEET AT 1/2ᵈ PER FOOT CUBE	£1,948 - 2 - 0


FEMALE LAV
CLOAKS
CLEANER
FLAT
TOP LIGHT
DOME UPPER PART COUNCIL CHAMBER LIGHT
TOP LIGHT
FLAT
CLEANER
MALE LAVATORY
BURIAL BOARD 21'0"×18'0" 322ᶠ
BOOK STORE 19'0"×15'0" 285ᶠ
TOWN CLERK SPARE OFFICE 18'0"×11'0" 198ᶠ
SPARE ROOM 19'0"×11'0" 209ᶠ
PLAN PHOTO ROOM 19'0"×11'0" 209ᶠ
TO PRIVATE OFFICE 19'0"×18'0" 342ᶠ
PLAN ROOM 19'0"×11'0" 209ᶠ
SUGGESTED POSITION OF TOWER
LIFT
MUNIMENT ROOM & STORE IN LOWER GROUND IMMEDIATELY OF LIFT
UP TO CARETAKER
LIFT TO SERVICE UNDER
CARETAKERS STAIRS
TOWN CLERK GENERAL OFFICE TOP LIGHT 28×25 = 700ᶠ
STRONG ROOM
SPARE OFFICE TOP LIGHT 31'0"×17'6" = 557ᶠ
UPPER PART COMMITTEE ROOM
KITCHEN TOP LIGHT 28×25 = 700ᶠ
DRAWING OFFICE NORTH LIGHT 28'0"×25'0" = 700ᶠ
TOWN CLERKS DEPARTMENT
SURVEYORS DEPARTMENT
B
B

SECOND FLOOR PLAN.



"INK-PHOTO" SPRAGUE & Cº Lᵀᴰ 4 & 5, EAST HARDING STREET, FETTER LANE. E.C.

DESIGN PLACED FIRST.

B.A., Architect.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS.

The Architect.

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FORTHCOMING EVENTS.

Friday, December 15.

Trades Training Schools : Distribution of Prizes at Carpenters' Hall by Lieut.-General Sir Robert S. S. Baden-Powell, K.C.B., K.C.V.O., &c., at 8 P.M.

Birmingham Architectural Association : Paper on "Art in Cheshire as expressed in Old Churches and Houses," by Mr. A. W. Hennings, at 6.45 P.M.

Saturday, December 16.

Institution of Municipal Engineers : Paper on "The Electric Trolley Omnibus System," by Mr. Horace Boot, at 3 P.M.

Monday, December 18.

Royal Institute of British Architects : Paper on "The Newer Responsibilities of Architects," by the Practice Standing Committee.

Tuesday, December 19.

Illuminating Engineering Society : Paper on "Some Aspects of Railway Station and Goods Yard Illumination," by Mr. Haydn T. Harrison, at 8 P.M.

MANCHESTER LIBRARY AND ART GALLERY.

THE ten sets of drawings prepared by the architects selected from the first competition are now on view, and the amount of work submitted by these men certainly shows the wisdom of the Manchester Corporation in arranging the first competition to one-sixteenth scale and in pencil only. The ordinary mind would be staggered if the whole 230 or thereabouts had prepared the drawings to one-eighth scale, and inked them in too. In such a case not one corridor would have been required, but greater part of the municipal buildings, big as they are. The architectural profession therefore owes the Council a debt of gratitude for their consideration.

The first impression of the drawings is the high level to which both design and draughtsmanship have risen during the past generation. Such a set would be creditable to any nation, not for the niggling exactitude once thought to be the be-all and end-all of an architect's work, but for the vigour and directness by which the various ideas are expressed.

The next impression is not quite so favourable—there is a certain sameness of treatment and grouping in all. This may possibly have arisen from the assessor's selection, but it may also show that there is a danger in following the "grand manner," that it tends to cripple originality and may after all turn out to be a Procrustean bed.

The selected design by Messrs. Crouch, Butler & Savage, of Birmingham, is remarkable for the direct simplicity of its plan, and in this is stands apart from all the rest. The problem was not an easy one to solve, and the severe limitation of space added to the difficulties. This restriction has forced the authors to pack the rooms so tightly together that their adequate lighting by natural means is open to grave doubt. For instance, the centre of the reading room is 64 feet from the walls on either side, and although a top light is shown on section it is very narrow and has to come down from a height of 56 feet above the floor and through an internal roof light some 20 feet below the outer glass. The sections have angle lines ruled to show how the light would fall, but such a device is like ventilation by little arrows—not an accurate guide as to what will happen. The vestibule in the centre has very small windows over the doors, but the large entrance hall beyond will be very dim. True, four large windows are shown, but these are in small areas—the opposite walls so few feet away that they are not much value for light. The grand staircases also light into these little areas and are aided by a borrowed light from the reading room and sculpture gallery on the first flight. Above they have a dome light, and will be satisfactory.

From the large entrance hall the reading room and sculpture gallery are approached from under the stairs, surely by no means a dignified manner, the best entrance and the one opposite the doorways being to a subordinate room—the lecture gallery.

Corporations frequently have functions, and a favourite one is a reception at the opening of a picture exhibition. The natural place for this would be the large central hall—but what of the library users? Are these supposed to filter through the arriving guests or to use the two tiny entrances and staircases at the Portland Street end? This is one of the faults consequent upon so much being put on a restricted site—library and art gallery must inevitably clash with each other.

The authors have cleverly got out of the difficulty involved in locating the book-store at the back as requested in the conditions by putting it in the basement; but is a basement a proper place for books? Is the bicycle-store for staff only? The conditions state it was for the public as well, but as it is placed the staff only can use it.

The picture gallery on the second floor is very well arranged, but so much area being asked for, the authors have had to put four reserve galleries, each 90 feet long and 20 feet wide, overhanging the reading room and sculpture gallery. This is a very clever idea, but how much better both reading room and sculpture gallery would be lit if these galleries were omitted. They supply about 800 yards of area, but the building would be 800 times better without them.

The elevations are severely treated with a distinctly Greek feeling, but this, whilst admirable in itself, is not the thing for Manchester dull weather; the windows are far too small for necessity, although they are right for the Greek feeling, which calls for plenty of wall space. Certain windows in these large wall spaces are shown on the plan, but do not clearly appear in the elevations; the outline is there, but they are not blacked in. If they had been so treated, they would spot and mar the powerful mass of stonework and injure the design. Again, in the basement what is the use of putting large windows under the flight of entrance steps? These are supported by a wall some 6 feet away from the windows, but if this wall had been blacked in the absurdity of their position would be seen. The huge windows shown on either side of main entrance, reaching from plinth to cornice, have no indication of the fact that two floors cross them. Those

ST. CLEMENTE, ROME.

in the end pavilions show the crossing of the first floor, but the perspective disagrees with the geometrical elevation by showing a crossing to the before-mentioned centre ones and ignores the mezzanine floor.

Still, with all these faults, this design is certainly the best of those sent in, and the authors are to be congratulated on their success.

Mr. Atkinson's design is very monumental, but the plan seems involved—the wisdom of putting the reading room on the first floor is certainly to be questioned. The back elevation to Parker Street is very pleasing and strikes a note of originality that is lacking in all the rest. It would be interesting to see this treatment consistently carried out on all four elevations—it would certainly be most suitable for the Manchester dull atmosphere. The detail drawing is a masterpiece of draughtsmanship.

Messrs. Bradshaw, Gass & Hope submit a design cleverly drawn, but it has the glaring fault of putting an additional storey of picture galleries over part of the main series. Was this not contrary to the conditions as to circulation, and, if so, should this design have been placed in the second competition? The stack-room has been a trouble in planning, and some of the stacks are placed in galleries, inside the magazine and technical rooms. These could not be isolated in case of fire.

Messrs. Fielding & Farrer show a totally different scheme to any of the others. The buildings are clearly divided into two sections, the art gallery being entered from Portland Street and the library from Piccadilly. The elevations are not as pleasing as the other designs.

Space forbids a detailed criticism of all the schemes, but that of Messrs. Adams & Holden must be noted for the fact that the entrance to all the rest of the building is through the sculpture gallery.

Mr. Worthington's design is a very severe and scholarly treatment of Greek; but the same remark as to smallness of window openings applies to this design. It is perhaps the most monumental of any of the ideas submitted, but it would require the brighter light of South Europe to be of practical use.

Messrs. Warwick & Hall's design is very refreshing in its detail, but their plan does not compare favourably with the others, nor indeed with many of the designs this firm have submitted in other competitions. The detail drawing is admirable.

Mr. Simon's idea pleases the ordinary non-professional man more than the others—the colonnade to the front and the two towers balancing the design make a pleasing composition. The scheme is clearly divided into two sections, each with equally important entrances in the main front to Piccadilly—the large reading room connecting the two blocks; but the picture galleries above do not circulate well.

On the question of grouping, the monumental style chosen by all the competitors except Mr. Simon would be very effective so long as the material keeps bright and clean—all cornices would give their full value; but Manchester weather and atmosphere would quickly blacken the buildings, the resulting effect being a black mass only and all refinement lost, and then the omission of an interesting skyline would be keenly felt.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

A VERY interesting set of drawings has been sent in by our contributors in measured illustrations of eighteenth century fireplaces.

"Malaya" has chosen his example from Micklegate Hill House, York, which is possibly one of the works o John Carr. "Malaya's" work is well drawn with a sufficiency of detail, but it would be worth his while to ink it in, to preserve it for future reference.

"Jock" has found a sumptuous example of a chimney piece in the board room of George Heriot's Hospital Edinburgh, which he has drawn quite satisfactorily to incl scale with quarter full size details.

Mr. E. H. Gibson sends a good drawing of a chimney piece from Markington Hall, Yorkshire, which shows distinct evidence of French rococo influence on a decidedly

ST. MARIA IN TRASTEVERE, ROME.

English craftsman. The example is interesting therefore, ather than admirable.

Mr. C. B. Chadwick has measured and drawn a rather small wood mantel-piece from Kirkstall Grange, Headingey, which is one of the many existing instances of design not by the Brothers Adam but influenced by their work. Mr. Chadwick is mistaken in describing the chimney piece as based on Greek principles and comprising the decorative treatment of the Greek Ionic order. The foundation of this type of design is the late Roman work as found at Pompeii, which is marked by a refinement that uggests and is possibly due to the influence of Greek spirit. Mr. Chadwick's pencil drawing has a nice touch, but would be more distinct if the drawing were finished.

"Alpha" has drawn the chimney-piece in the hall of he Trinity House, Newcastle-on-Tyne, which is adorned with carvings of seahorses, mermaids and other marine emblems that are more quaint than beautiful, the composition of the ornament being lacking in good distribution. The drawing is well executed in pencil but would be better and more complete with more details.

Mr. G. C. Styles contributes a drawing of a simple arly eighteenth century oak chimney-piece in the Merchants' Hall, Fossgate, York. Mr. Styles has done well to give full-sized details which add value to the simplicity of the example he has selected.

We have awarded for this month prizes of half a guinea each to "Malaya," "Jock," Mr. E. H. Gibson, and "Alpha."

EARLY ROMAN CHURCHES.*

THE Early Roman churches hold an important position in the history of Christian Art, and in the art of Architecture in particular. They form the earliest buildings specially erected for the Christian religion, and which have survived to the present age in Europe. It is true that in practically every case the buildings, as they appear at the present day, have been repeatedly repaired and restored.

Some, indeed, have been rebuilt, but in most cases the econstructed church was of the same type as the one it replaced and upon the same site, and not infrequently includes some portions at least of the earlier structure.

Many buildings have suffered less severely from the effects of time than from the ill-judged additions and modifications introduced to a great extent in the later days of the Italian Renaissance, and entirely out of harmony with the buildings.

It is somewhat remarkable that among the early Roman churches the finest and largest buildings of which any remains exist belong to the earliest period, and that the buildings of a later date are smaller in scale and often inferior in construction. The circumstance is accounted for, however, by the history of the early days of the Church in Rome.

Throughout the first three centuries of our era, from the time of the first preaching of Christianity in Rome, the new religion, though often tolerated for long periods, was at various epochs subjected to persecution, often of a fierce description, and one of the most severe was in the closing years of the third century under Diocletian, when a determined effort was made to stamp out Christianity, and all Christian churches were ordered to be destroyed and Christian documents burnt. The destruction of the churches was rigorously carried out, and there is no building of any importance still standing that was used for Christian worship in or near Rome before this date.

Signor Lanciani states that during this early period "the Christians took advantage of the freedom accorded (by the laws of Rome) to funeral colleges, and it was largely through the adoption of these well-understood and respected customs that they were enabled to hold their meetings and keep together as a corporate body through the stormy times of the second and third centuries."

They had their own cemeteries, and in these, excavated in the soft rock outside the walls of Rome, chambers were formed originally for burial, but which in times of persecution were capable of being used for meetings.

In connection with Roman cemeteries, Pagan as well as Christian, it was customary to erect above ground a chamber or schola, in which the funeral ceremonies were held, and which, in the case of Christian communities in less troublous times, were available for Christian worship. Examples of this type of building remain above the catacombs of Soter and above those of St. Calixtus; the latter takes the form of a square hall open on one side, and having an apse in

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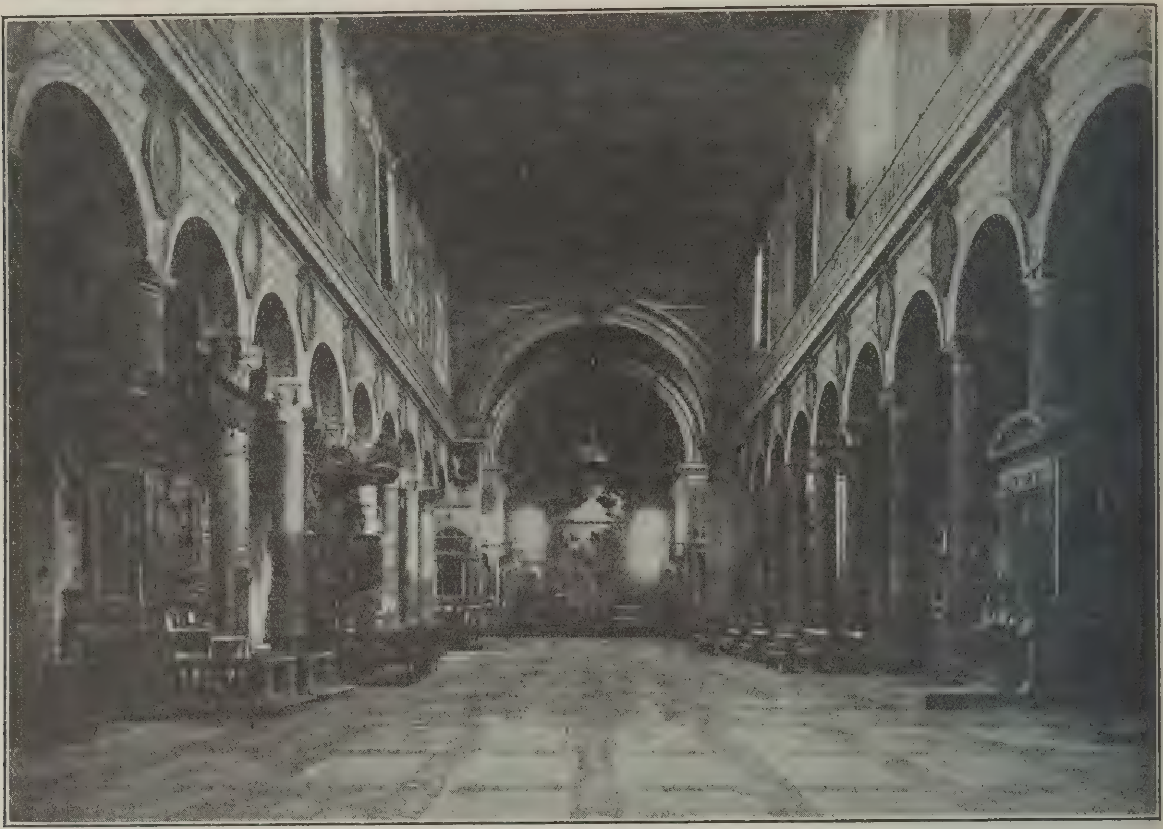
* A lecture by Professor Elsey Smith, delivered at King's College, London, on December 6.



ST. MARIA IN ARACŒLI, ROME.

each of the other three. It is believed to have been built by Pope Fabianus between 236-50, but was afterwards nearly destroyed and reconstructed in the time of Constantine, who added a façade and vaulted the building.

It is important to note that even in times of persecution and in the case of Christians who had been publicly executed, the privileges of burial were not, as a rule, denied to the friends and relatives of the victim. The bodies of such martyrs were buried in their own catacombs, and the grave of a notable martyr became an object of veneration; and when more peaceful times arrived a church was often raised above it.

The tomb was under no circumstances disturbed, and the church, when erected, was so placed that the centre of the apse—the site of the altar and the place of honour—was immediately above it, while the body of the church, excepting in the case of an insuperable obstacle, was placed on the east of it. In the case of these earliest churches, therefore, the system of orientation was different from that which became general in the fifth century. At this time the priest or bishop stood behind the altar, facing the congregation, and also facing east, and the apse was therefore at the western end of the building, and the principal entrance and atrium at the east end.

Early in the fifth century the general arrangement of the building was reversed, the apse being placed at the east end and the entrance at the west end, so that the congregation faced east as they were turned toward the apse, and the priest also faced east, but stood now between the congregation and the altar, instead of the altar being placed between them.

In cases where the original tomb was at no great depth from the surface, the floor of the church was approximately at the ground level, but cases occurred in which the tomb had been deeply excavated, and the church in such cases was sunk below the ground level, the rock being cut away for the purpose, as at the church of St. Agnes. Many of the great churches of Rome were founded in this way, as, for example, St. Paul's-without-the-Walls, St. Peter's, St. Agnes, St. Lawrence. The catacombs were formed in all cases outside the walls and bordering on the great public roads leading out of Rome, and the churches erected on these sites were all outside the walls.

At a later date the term "confessio" was given to this chamber containing the tomb, and it developed into a regular crypt, which at first was small, and confined to the area of the apse, but in some cases was extended forward into the nave.

Soon after the opening of the fourth century the circumstances of the Church were entirely changed. Up to this period it had at best been tolerated. But by the Edict of Milan it was fully recognised and protected, and the Emperor Constantine accepted the Christian religion. From this time the Church, which, in spite of periods of persecution, had made many and important adherents, rapidly increased; and, all fear of persecution being at an end, every effort was made not only to replace the buildings destroyed by Diocletian, but to provide increased accommodation for the enlarged congregations. And the emperor took his full share in this enterprise.

It was, therefore, with the approval of the emperor, and assisted by Imperial example, that the early part of the fourth century saw great activity displayed in the erection of Christian churches, many of them large and noble buildings.

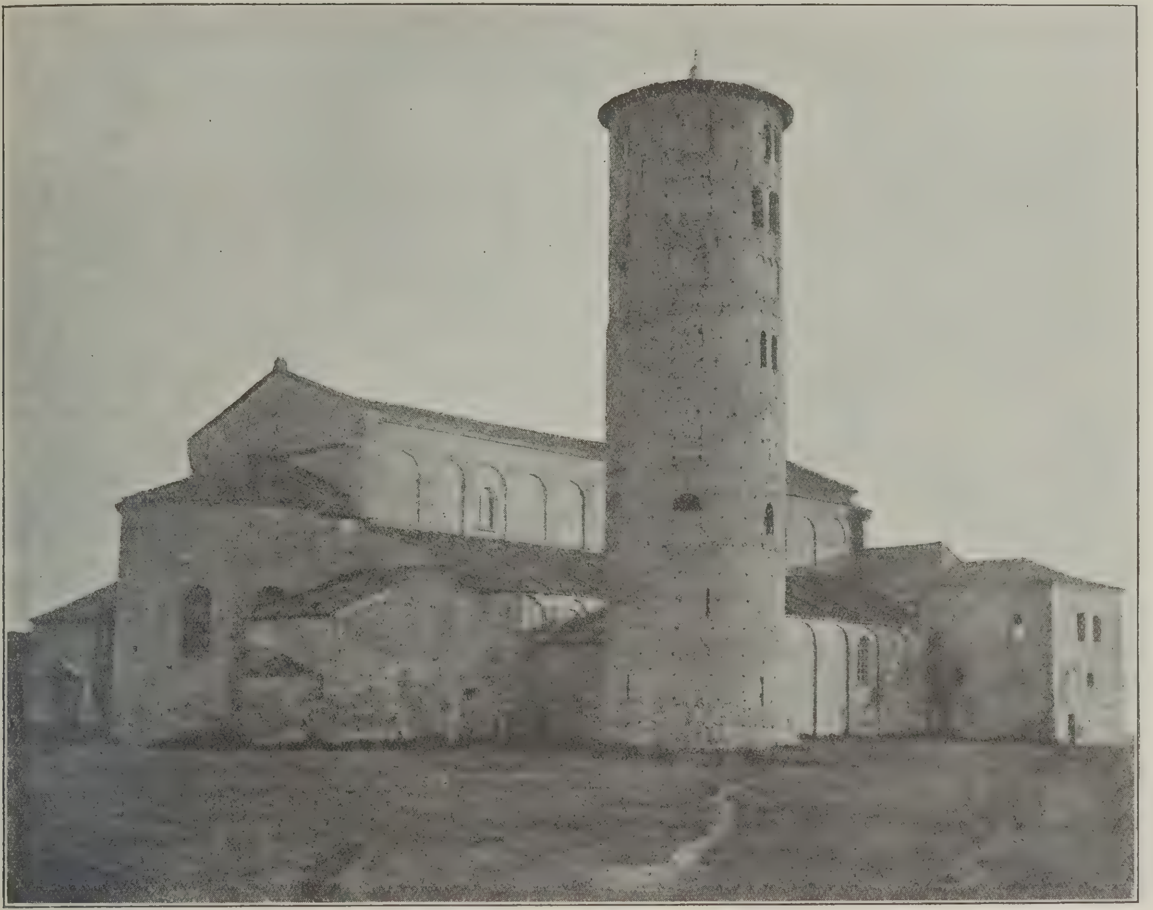
They were inferior, however, in point of construction to the vaulted structures of the late Imperial period, with which they were almost contemporary.

No church in Rome can be considered both externally and internally to be in its original condition, and the best impression of the appearance of an early basilica is probably to be obtained at Ravenna, where the buildings have been less interfered with than in the more important centre of Rome.

Professor Lethaby, in referring to the various theories that have been put forward as to the origin of the type of church termed "basilican," as erected in Rome in the time of Constantine, and which continued to be the type of building that was erected for several succeeding centuries, did not pronounce in favour of any one theory, but rather expressed the view that in all probability more than one factor contributed to the actual form of these early churches—a view which seems to be an entirely reasonable one. It is unnecessary, therefore, for me to refer again to this subject at any length.

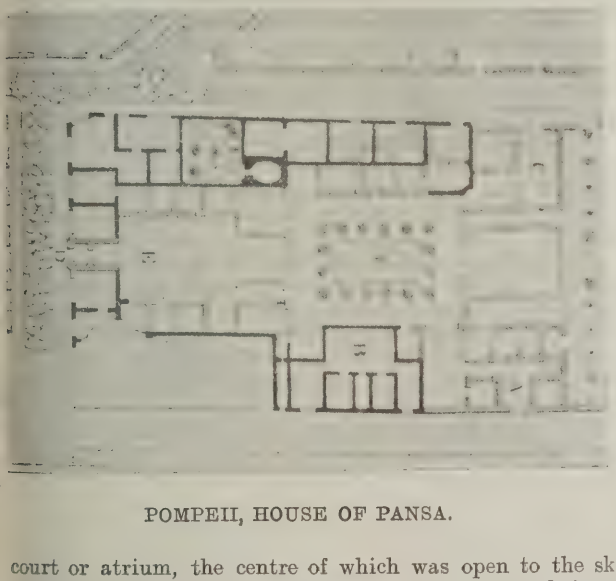
It is, however, an established fact that in the early days of the Church the Christians did meet in private houses, and the planning of such houses has in some respects such a close resemblance to the arrangements of a typical and complete Christian basilica that it seems impossible to ignore the correspondence between the two, or attribute it to a mere coincidence.

The owner of such a house, in placing it at the service



ST. APOLLINARE IN CLASSE, RAVENNA

of his fellow-Christians, would naturally make use of the largest and most important room. In all Roman houses of any importance this room was approached through a court or atrium, the centre of which was open to the sky. Round this court there was at least a roof, and in all except small courts the outer edges of this roof were carried by a row of columns forming a covered wall or peristyle, and in the centre of the open space was an impluvium, or tank, to receive the water from the roof.



POMPEII, HOUSE OF PANSA.

The room itself was placed at the opposite end of the court to the entrance, and even at the provincial town of Pompeii, where the best preserved examples of Roman houses exist, this chamber was of considerable size and importance.

It is known that in the palaces of the wealthy Romans a basilica was by no means an unusual feature, and that many of them were large and richly treated. Vitruvius speaks of them as rivalling in some cases the public buildings in their extent and magnificence and as used for public business, the meetings of councils, and as halls for legal judgments and arbitrations.

It is known, too, that quite early in the Church's history some of the more important of the Romans were included in the Christian ranks. In the time of Domitian, before the close of the first century, these even included near relatives of the emperor. It is stated by Eusebius that in the reign of Commodus, near the close of the second century, the Church was enlarged by the adhesion of persons of all conditions, and in Rome by the conversion of whole families among the noblest and richest. It is, therefore, almost certain that some of these adherents would possess basilicas as part of their palaces, and open them for the meetings of the Church.

The Christian basilica with its atrium differs in certain respects from any example of a Roman house or palace that has actually survived as such. The basilica is on a larger scale, and the court which in Roman houses gave access to rooms on all sides in the Christian church is the approach to the church alone, and the central area of the court is of much greater extent than in the private house. But the combination of the court and the basilica under the circumstances can hardly be a chance coincidence.

In order that we may get as clear an idea as possible of the arrangement of one of these basilicas, it will be desirable to examine the plan and aspect of an example in Rome which most closely approaches in its present state to the early form of this type of Christian church.

The church of St. Clemente as it appears to-day is, it is true, a comparatively late structure, the result of a restoration following a disastrous fire in 1084, but the original church is considered to have been in existence as early as 308, and to have then formed part of a private house. It was afterwards enriched and possibly enlarged, and at the time of the fire was wider than the present church, the nave and narrower aisle of which cover the old nave. The old walls and columns were used to carry the later church, the floor of which is about 12 feet above the old floor.

The present church retains the atrium complete, and is the only perfect example of this feature in Rome, though portions of several others exist. This stands in front of the church, and is slightly wider than the present building. It is entered externally by a small porch, and a covered wall runs round the atrium; the roof is carried on the

[TORCELLO CATHEDRAL, APSE.

entrance side by square piers, and on the other three sides by Ionic columns, and the church is entered by a single door from the atrium.

The plan of the church is a simple rectangle, broken only at the far end by the projection of the apses. The whole width in this instance is divided into three parallel compartments separated from each other by rows of columns; in this example each row is divided into two groups by a rectangular pier. The triple division of the plan is usual, though in some of the larger examples there is a fivefold division, there being two aisles on each side of the central nave. There is, however, an unusual difference in the width of the side aisles, due to the fact that the church had to be contrived so as to make use of the earlier foundations. The use of columns to form the divisions is also usual, but the subdivision into groups is comparatively rare. It is found also in St. Maria in Cosmedin and St. Prassede.

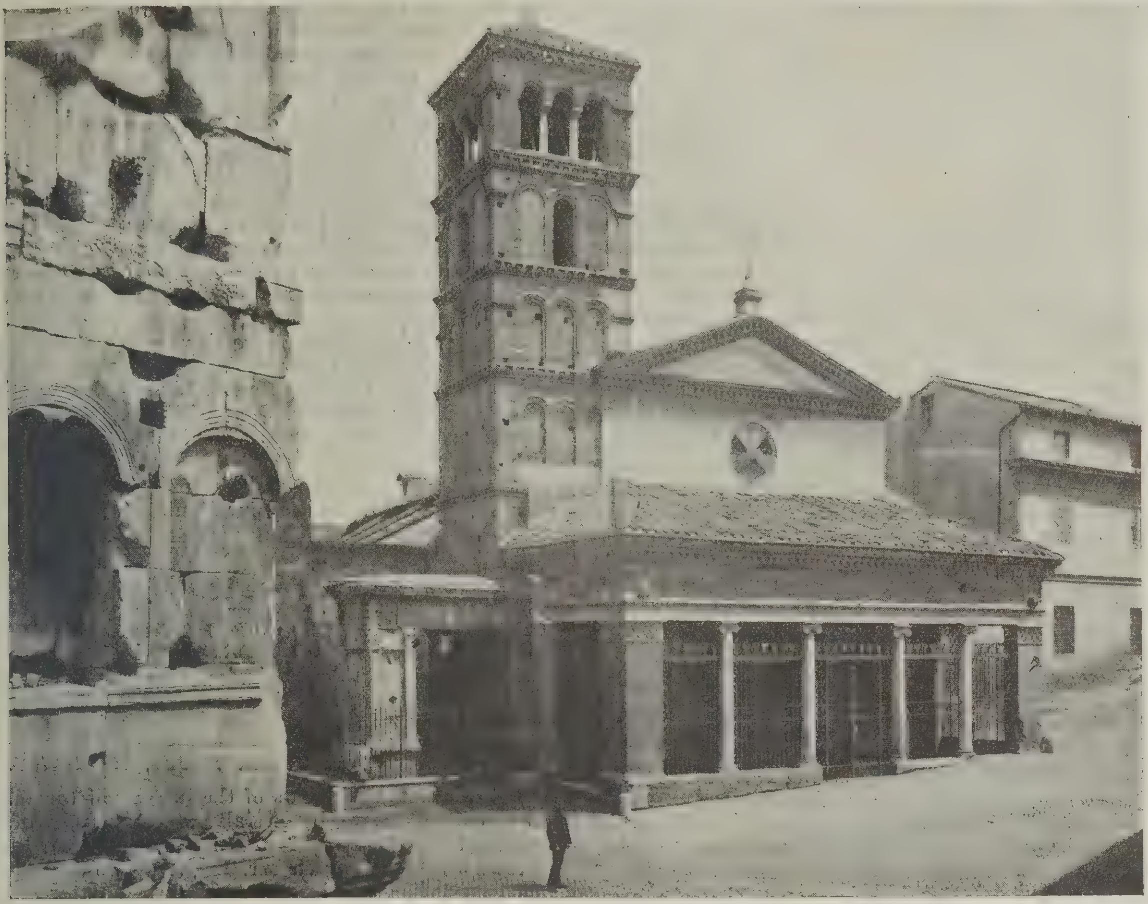
The nave is terminated by the apse—a semicircular projection beyond the end wall of rather smaller diameter than the width of the nave, and the floor of which is raised somewhat above the nave floor. This is an universal feature, and recalls the similar feature which occurs in the majority of secular basilicas. The side aisles also each terminate with an apse, which occurs beyond a short prolongation of the aisle; the wider one is hexagonal in plan. The narrower one is semicircular, and each provides accommodation for an altar.

The central apse has in the centre against the wall a raised seat or throne for the bishop, and round the wall ran a bench or benches concentric with it for the lesser clergy. The altar stands at the centre of the front of the apse, and is here, as usual, surmounted by a ciborium or baldachino. The choir projects forward into the body of the church, extending as far forward as the piers in the centre of the colonnade, but it is considerably less in width than the nave. This was enclosed with a low wall of marble, and on either side of it was a raised platform or ambone, from one of which the Gospel for the day and from the other the Epistle were read.

Turning from the plan to the superstructure, we find that the rows of columns forming the internal division are monoliths of marble, each standing on a moulded base and surmounted by an Ionic capital. The columns used in most of the basilicas have been removed from Classical buildings, and in many examples they are much less regular, both in height and diameter, than in this example. In such cases both bases and capitals show much variety, and sometimes the capitals are not even all of one order. At St. Maria in Trastevere, for example, both Ionic and Corinthian capitals occur in the same arcade; and in the church of Aracœli, while most of the capitals are composite specimens of Corinthian, Ionic and even Doric all occur in the one arcade. The capitals in many cases do not fit the columns on which they rest with any accuracy, but this extremely careless work occurs rather in the later than in the earliest basilicas.

At St. Clemente the columns carry an arcade springing directly from the capitals, and above this runs a cornice, which is continued round the apse at a level considerably below that at which the semi-dome which covers the apse springs, giving it the appearance of being stilted. This use of arches is very frequently met with in basilican churches, but in not a few examples a purely trabeated treatment is adopted, and the columns carry an entablature, which in some cases, like the column, is obtained from Classical examples, and is by no means all of one type. Above the cornice at St. Clemente the walls are plain except for windows pierced on either side sufficiently high for the sills to be above the aisle roofs. These walls offered a splendid field for decorative treatment, and in some examples they were enriched with mosaic work, as at St. Apollinare Nuovo, at Ravenna, one of the best preserved interiors of the basilican type, and in other cases with coloured decoration. But in almost all cases the existing colour decoration is of very much more recent date, and sometimes the decoration is entirely absent.

At St. Apollinare, the nave of which is practically in the same state as when first erected, the entire height of the wall is divided into three well-marked divisions—firstly, the main arcade of columns and arches; above this a perfectly plain wall enriched with a splendid frieze in mosaic, and corresponding in depth with the height of the sloping roof over the side aisle—the space that in Gothic buildings is occupied by the triforium arcade: finally, we have the range of



ST. GIORGIO IN VELABRO, ROME.

windows by means of which the interior is lighted, known as the clerestory, and occupying the same relative position and performing the same office as in Gothic naves.

The nave of St. Clemente is covered by a timber roof. Framed principals are used at short intervals to carry the external roof covering, and below them, at a much later date a richly coffered and ornate Renaissance ceiling has been constructed; but originally they were exposed to view, as is still the case in the nave of St. Lorenzo. The side aisles are each covered by a sloping roof, the tops of which reach up to below the sill of the clerestory windows, and the slope extends down to the top of the side walls.

At the end of the nave a great arch is pierced through the wall, and beyond it, and containing the soffit of the arch, comes the apse. The opening is known as the arch of triumph, and here and in the vault of the dome the richest surface decoration of the building is usually concentrated.

At St. Clemente the dome of the apse is encrusted with mosaic, starting from the level of the cornice already described. This is a typical treatment of the apse, which is invariably covered by a dome, and usually enriched with mosaic; it formed the most solidly-constructed part of the building, and in early examples is usually the only part covered by an incombustible roof. Largely owing to this fact, no doubt, the apse and its decorative treatment are usually comparatively well preserved. This is even the case with St. Paul's-without-the-Walls, the apse of which survived the fire which destroyed the rest of the building early in last century. The cathedral at Torcello, which dates from the middle of the seventh century, and is of the basilica type, shows the original arrangement of the apse with its seating better than any other example, though it has been considerably restored. The central throne is still in its original position, raised high above the other seating, which is formed in a series of concentric steps right and left of the throne, and these are still complete, though almost entirely stripped of their original marble casing. But the walls of the apse above the highest step still retain the marble lining formed of thin slabs with strongly-marked bands of colour, every alternate slab being reversed so as to give the effect of a zigzag pattern carried all round.

The exteriors of most of the basilican churches contrast remarkably with the interiors. In later times many of the exteriors have been modified and enriched, but that of St. Agnes still presents an example of extremely plain external treatment. Little attempt was made at first to enrich them or give them any striking architectural character, but they express very faithfully the arrangements of the church itself. Many of them, like the buildings of Imperial Rome, had an external facing of brick; but, in contrast with such buildings, this material formed the actual external face or was merely plastered, and not treated with any degree of richness.

St. Apollinare in Classe, at Ravenna, which still retains externally its original appearance, may be referred to as giving at the present time the best idea of the simple treatment of the exteriors of these early buildings, as most Roman examples have been much altered. It is faced externally with brick, and consists of a rectangular nave roofed with a low-pitched roof, and terminating at either end with a gable. The walls above the aisle roofs are treated with an arcade corresponding with the internal colonnade, and for the most part blank but pierced at intervals with windows with semicircular heads. The entrance is covered by a narthex extending across the whole front, and equally plain in character. The apse is roofed externally with a sloping roof, and is lighted by similar but longer windows; the walls are in other respects perfectly plain, but the aisle walls are again treated with an arcade in brick, carried up close to the eaves of the roof and pierced at intervals with windows. A striking feature of the exterior is the detached campanile, which is circular in plan and devoid of any attempt at decoration. It looks even plainer than in its original state, as many of the openings that formerly existed have been bricked up. Other circular examples occur at the Baptistery of St. John and at the cathedral at Ravenna, and these appear to be the earliest towers existing in Italy.

The Roman churches do not appear to have had campaniles at so early a date as those Ravenna towers, but in most cases campaniles were erected at a later date, and these are usually detached; but in Rome they are not circular in plan, but square. Their erection seems to have commenced in the first quarter of the seventh century, and a large number were built during this and the succeeding centuries. Such towers were added to the early basilicas of Constantine's time, as to others. The tower of SS. Giovanni e Paolo is one of the earliest referred to in contemporary documents, and is mentioned in 726; that of St. Agnes is of about the same date, and St. Giorgio in Velabro also belongs to this century, while those of St. Lorenzo-without-the Walls, the Lateran basilica, St. Peter's and St. Maria in Cosmedin among others, were erected in the following century.

Many of these campaniles have a strong resemblance to the Lombardic type of tower, and this feature is almost the only one in Roman churches that at this period shows any trace of such influence.

It was not till the beginning of the seventh century that a bell was employed to call the worshippers to church; at an earlier date a trumpet had been often used for this purpose. With the introduction of the bell some lofty structure to raise it high above the building, so that its sound might spread in all directions, was essential, and as the occasion for such towers, therefore, was only experienced at a comparatively later date, and there was, as far as is known, no feature in Rome to serve as a prototype, the influence of the Lombard builders is easily understood.

The early towers were in many cases of quite moderate height, and were afterwards raised at some later period. That of St. Maria in Cosmedin, which is one of the tallest and most graceful in Rome, was originally much less lofty; it consisted only of a ground floor storey of considerable height and two stages above it, each having two round arched openings. In its present state it has five additional stages, each with its openings arranged in groups of three, but this part of the work is a century later in date. In these towers the stages are distinctly marked by strong horizontal string-courses, and are often numerous; the arcades are very usually carried by single shafts placed in the middle of the wall, and supporting a capital resembling a dosseret in form, and sufficiently extended to support the whole thickness of the wall, but with small lateral projections. These features, with the general form of the tower, are suggestive of Lombardic influence; but the use of pilasters and the marking of the stages by arched corbel tables, which are both characteristic of Lombard treatment, are absent. These towers are uniform in width throughout their entire height, the outline being only broken by the slightly projecting string-courses, and the whole tower is finished, as a rule, with a cornice, and covered by a low-pitched pyramidal roof.

(*To be continued.*)

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

A GENERAL meeting was held on November 30 in the Society's room at the Leeds Institute, the President (Mr. Sydney D. Kitson, M.A., F.R.I.B.A.) in the chair.

A very interesting paper was read by Mr. Alfred Mattison on "Old Leeds." He described its growth and development from a village up to the city of the nineteenth century, illustrating his text with many slides of old documents and engravings, &c.

Mr. W. H. Thorp, F.R.I.B.A., in proposing a vote of thanks, deplored the loss of many of the historical fabrics so reminiscent of the early days, and remarked upon the Red Hall, Guildford Street, which is at present undergoing drastic changes in the way of renovation and alteration.

The motion was supported by Mr. C. B. Howdill, A.R.I.B.A., who spoke of the lack of civic spirit shown in Leeds, especially with regard to architectural development.

SCOTTISH ECCLESIOLOGICAL SOCIETY.

AT a meeting of the Society held on Saturday in the Lecture Hall of the National Portrait Gallery, Edinburgh—Professor Cooper presiding—Mr. James Ballantyne gave a lecture entitled "A Short History of Church Stained Glass." After briefly describing the enthusiasm displayed in the mediæval days for church stained glass, the lecturer proceeded to examine in detail the different types and characteristics of each century. Beginning with the earliest church stained glass of the eleventh century, he showed slides of windows at Le Mans, Chartres, and Canterbury. The simple direct manner in which the early artists worked, and their thorough appreciation of the inherent qualities of the material was clearly indicated. After reference had been made to the influence stained glass had upon church architecture in the fourteenth century, to the extent of creating a distinct style and method of building to suit its own needs, examples were given from York, Gloucester, Oxford, and Rouen. The influence of Flemish artists on the stained glass of the fifteenth century in England was suggested by slides of the windows at King's College, Cambridge, and at Fairford, and the actual work brought from Belgium being instanced by the glass at Lichfield and St. Margaret's, Westminster. Going on to describe the effect of picture-painting on the designs of stained glass of the sixteenth century, Mr. Ballantyne closed with an extract from Emile Male's "L'Art Religieux," the most comprehensive study in recent years of the art of the mediæval church. The lecture was illustrated by about seventy slides, and was followed with much interest.

Among others present at the above were Sir James Balfour Paul, C.V.O., LL.D., Lyon King-of-Arms; Sheriff Scott Moncrieff; Mr. Thomas Ross, LL.D.; Mr. W. Traquair Dickson, W.S.; and Mr. James Wilkie, S.S.C., Honorary Secretary. The Rev. Percy Herford opened the meeting with prayer.

Mr. Ballantyne was thanked on the motion of Dr. Ross, seconded by Sir James Balfour Paul.

ILLUSTRATIONS.

COMPETITION DESIGNS FOR MARYLEBONE MUNICIPAL BUILDINGS.

IN accordance with our promise, we now give reproductions of the detail drawings accompanying the designs placed second, third, and fourth.

THE LONDON OPERA HOUSE, KINGSWAY.

WE this week give views of the interior of the auditorium from photographs specially taken for us, with those we published last week, by Mr. Ernest Milner. A description of the building, of which Mr. Bertie Crewe is the architect, was included in our last week's issue. In this we omitted to mention that the asphalte work was entirely carried out by the well-known firm of asphalte manufacturers and contractors, Thomas Faldo & Co., Ltd., of Effingham House, Arundel Street, Strand, W.C.

LONDON HOMŒOPATHIC HOSPITAL.

THIS hospital was erected about eighteen years ago on a site facing Great Ormond Street.

Owing, however, to the demands of the district, it was found necessary to very much enlarge it, and we to-day give a view of the west front of the extension facing Queen Square.

The frontage is about 86 feet, and the building is seven storeys in height.

The ground floor is occupied by the new Board room and offices; the first, second and third floors consist of large wards with day-rooms attached, and each ward has a balcony towards the square.

The fourth floor contains ten wards for private patients, and the fifth floor isolation and other wards.

There is also an operating theatre, with anæsthetising and sterilising rooms on the fourth floor.

At the north end is a staircase for use of the staff and for exit in case of fire. There is a large lift to take patients to their beds.

The roof has been formed so that patients may be treated in the open air. The remainder of the hospital has been in many respects modernised and extended. The out-patients' department has been entirely remodelled, and several new consulting-rooms, with an operating theatre and its accessories and a surgical dressing-room, gymnasium, &c., have been added.

A new boiler-house and fitters' shop, disinfector, destructor and pathological department have been constructed. A mortuary chapel has also been erected, the walls being lined with Spanish and other tiles; the floor is of glass mosaic; the windows and lantern light have been filled with pictorial glass by Mr. Archibald K. Nicholson; the embroidered altar frontal was made by Mr. Stalman from the architect's designs.

The old staff home in Powis Place has been remodelled to form a museum, lecture-rooms, &c.

A great many other minor alterations have been made.

The architect is Mr. Edwin T. Hall, F.R.I.B.A., F.R.San.I., of 54 Bedford Square, W.C., and the contractors Messrs. Holliday & Greenwood, Mr. A. Turner and Mr. C. Cornes having been clerks of works.

PRIZE DESIGNS AT THE ROYAL ACADEMY.

THE gold medal and travelling studentship has been very easily won by Mr. Alan Binning, his design for "The Hall of a City Company" having no really serious competitor. Mr. Binning is a Londoner, educated at the City of London School, served his articles with Messrs. Wallace & Gibson, and is now in the office of Mr. Leonard Stokes. The City company's hall is arranged in all the designs around three sides of an open quadrangle, and the chief feature is a grand banqueting hall on the first floor in the main *corps de logis* at the rear of the site. Mr. Binning has arranged a good entrance hall centrally on the ground floor; on the left are the waiting room and drawing room, with a grand staircase leading to the grand dining hall; on the right are a coffee room and the court room, with the clerk's offices conveniently near. The plan is sensible, workable and yet sufficiently dignified and architectural. The banqueting hall is well proportioned and the staircase stately. In his external treatment Mr. Binning has rightly made the banqueting hall the dominant feature of his composition, and the two side wings, which on the upper floors contain the clerk's residence and the kitchen and offices, markedly subservient. There is a suggestion of study of François Mansart in the design, which is shown in well-executed drawings shaded in wash with a coloured detail of the mural decoration of the banquet hall, of which a coloured interior perspective is also given.

The author of design 137 has spent much time in designing and drawing the plan of his marble floors, which would have been better devoted to planning. He makes the mistake of giving the same size and plan to the court room and the drawing room, whilst his clerk's office is inconveniently placed with reference to the court room. A meaningless tetrastyle Doric portico with varied intercolumniation ruins his exterior treatment, and his attempt at the modern Franco-American Beaux-Arts type of design shows lack of knowledge.

No. 138 has a great deal of hall and corridor, with a big assembly hall on the ground floor leading to the drawing room at one end and the main staircase at the other. A fatal fault of plan is the placing of the ladies' cloak room on the first floor. There is a lack of architectural sense both in plan and elevation, the latter having the solecism of two main cornices, one over the order and the other crossing the attic.

No. 139 has a good entrance hall but poor grand staircase, the first flight of which is between two walls. This plan also contains the mistake of a drawing room and court room of the same size. The banquet hall is badly proportioned, being too long and narrow. The elevation is spoilt by the author's fear of making his principal windows too big, and therefore putting circular bull's-eyes over the windows of his banquet hall.

No. 140 has gone for originality both in plan and elevation; the former is eccentric and rambling from the curious entrance to the colonnaded banquet hall, with columns breaking up the high table; the latter is an ill-digested concoction of discordant motifs from Egyptian to New Art.

No. 135 is a mad, wild dream of rococo out-Heroded.

The medals for a set of architectural measured drawings are awarded to renderings of the east end of the church of St. Martin-in-the-Fields. The silver medal is taken by Mr. Walter Llewellyn Clark for a set in pencil and dirty colour, which show better feeling and better drawing of detail than the more carefully finished but lifeless set that gain the bronze medal for Mr. Augustus Gaffett Bryett.

The silver medal and prize of £20 for a design made in the School go to Mr. James Mitchell Whitelaw for his drawings of a concert hall in a large town, part of a good scheme of town planning, showing study of French manner in detail.

For a set of drawings of an architectural design Mr. Verner Owen Rees earns the silver medal and first prize of £15 for a design for a Place on the south side of the Thames, of which the chief features are a terminal station, a hotel and the river. Mr. Cyril Farey takes the bronze medal and second prize of £10 for a design for a winter garden, which, if less grandiose, has much merit for a quietly conceived rendering of rusticated Doric.

Two competitors only submit perspective drawings in outline of "The 'College' at Westminster School," and Mr. James Gough Cooper easily wins the silver medal for a not very excellent drawing by reason of the inability of his only competitor to draw a perspective with circular lines.

One cannot but be struck with the very low standard of achievement shown by present-day students of the Architectural School of the Royal Academy. There is much ambition to attack grand schemes, but there is a marked slovenliness of draughtsmanship, a lack of comprehension of the elements of architectural design, an ignorance of detail and an unhappy striving for originality that prove the error of the present system of letting the students have a free hand. It would seem that in a fear of developing an "academic" character of design, the instructors have not sufficiently realised the importance of training and discipline for embryo students of architecture. What the President said in his address, more particularly with regard to students of painting, that it had been hoped "that candidates for the Academy Schools would come well grounded," applies with peculiar force to the Architectural School. It is precisely the lack of a good grounding in design that fills the school with ambitious aspirants who require taut leading-strings, if not strait-waistcoats.

PRIZE DISTRIBUTION AT THE ROYAL ACADEMY.

THIS is gold medal year at the Royal Academy, and consequently more interest and excitement characterised the prize-giving last Saturday, when the following awards were made:—

Historical Painting, "The City of Refuge."—Gold Medal and Travelling Studentship (£200), Margaret Lindsay Williams.

Landscape Painting, "Storm Clearing off on the Skirts of a Wood."—Turner Gold Medal and Scholarship (£50), Gladys M. Clark Kennedy.

Landscape Painting, "A Lock on the River or Canal."—Creswick Prize (£25) and Silver Medal, Joan Joshua.

Design for the Decoration of a Portion of a Public Building, "Winter."—First prize (£30) and Silver Medal, Margaret Lindsay Williams; second prize (£10) and Bronze Medal, Florence Margaret Walden.

Design in Monochrome for a Figure Picture, "Samson pulling down the Pillars in the House of Dagon."—Armitage Prizes: First (£30) and Bronze Medal, not awarded; second (£10) and Bronze Medal, Katherine Frances Clausen.

Composition in Colour.—Prize (£10) and Silver Medal, James Williams.

Cartoon of a Draped Figure, "Agrippina Carrying the Ashes of Germanicus."—Prize (£25) and Silver Medal, Madeline Emily Green.

Painting of a Figure from the Life.—First prize (£10) and Silver Medal, Horace Edward Quick; second prize, Bronze Medal, Alice Adrienne Nash.

Painting of a Head from the Life.—First prize (£5) and Silver Medal, not awarded; second prize, Bronze Medal, Madeline Emily Green. Charles Vincent Holder, who tied with Miss Green, had won the prize before, and was therefore disqualified.

Perspective Drawing in Outline (open to Painters and Sculptors only), "One of the Piers near the Queen Victoria Memorial in the Mall."—Prize (£5) and Silver Medal.—No competition.

Set of Four Drawings of a Figure from the Life.—First prize (£15) and Silver Medal, Frank Crown Mitchell; second prize (£10) and Bronze Medal, Horace Edward Quick.—He tied with Leopold Lemage Swain.*

Set of Three Studies of Drapery.—Silver Medal, Grace Mary Hawkins.

Composition in Sculpture, "Rescued."—Gold Medal and Travelling Studentship (£200), John Angel.

Model of a Design, "An Act of Mercy."—First prize (£30) and Silver Medal, Gilbert Ledward; second prize (£10) and Bronze Medal, Newbury Abbot Trent.*

Model of a Bust from the Life.—First prize, Silver Medal, Robert Peter Baker; second prize, Bronze Medal, Charles Randle Jackson.

Design of a Medal to Commemorate the Coronation.—Prize (£5) and Silver Medal, Edmond T. Wyatt Ware.

Set of Three Models of a Figure from the Life.—First prize (£15) and Silver Medal, Robert Peter Baker; second prize (£10) and Bronze Medal, James Booth.*

Design in Architecture, "The Hall of a City Company."—Gold Medal and Travelling Studentship (£200), Alan Binning.

Set of Architectural Drawings.—First prize, Silver Medal, Walter Llewellyn Clark; second prize, Bronze Medal, Augustus Gaffett Bryett.

An Architectural Design.—Prize (£20) and Silver Medal, James Mitchell Whitelaw.

Set of Drawings of an Architectural Design.—First prize (£15) and Silver Medal, Verner Owen Rees; second prize (£10) and Bronze Medal, Cyril Farey.

Perspective Drawing in Outline (open to Architects only), "The 'College' at Westminster School."—Silver Medal, James Gough Cooper.

Original Composition in Ornament (open to Architects only).—Prize (£5) and Silver Medal, Thomas Pentburthy Bennett.

Architectural Design with Coloured Decoration, "The East End of a Memorial Chapel."—Silver Medal.—No competition.

Landseer Scholarships in Painting and Sculpture, of £40 a year each, tenable for two years, have been awarded—in painting, to Archibald G. Barnes and Katherine F. Clausen; in sculpture, to Robert P. Baker; and for one year in sculpture, to James Booth and Alfred Wilkinson.

* Disqualified owing to having received the same prize before.

After the distribution of prizes the President, Sir Edward Poynter, delivered the following address to the students:—

In my discourses I have always tried to follow the example of my great predecessor, the first President of this Royal Academy, and to put before you in one way or another an ideal to which it should be the object of the student to attain; and I have tried to convince you that without steady and serious study such natural talents as you have will never attain their proper development.

No idea more foolish, more preposterous I may say, more opposed to the dictates of reason and common-sense, was ever put forward than that instruction in the study and practice of your art will stifle originality, and that the more helpless and crude the efforts of an artist are in the exercise of his art the better he is equipped for displaying his natural genius; a theory which, though not so baldly expressed, is certainly at the bottom of much that is written about art at the present time, and is apparently, to judge from some exhibitions which we have lately seen, in high favour with a school, if we may call it a school which professes to learn nothing, on the other side of the Channel—a school which, I may say, is as much repudiated among the saner spirits in France as it is by those in this country.

I am much afraid that the mind of the student of to-day is only too apt to be led astray by specious arguments that there is no need for study. I do not refer specially to the students in these schools; the mere fact that you come here is evidence that you believe a knowledge of your craft to be part of the equipment of an artist necessary for the expansion of his natural gifts and the proper expression of his creative faculties. But the idea that patient study can be dispensed with is catching, and there is an epidemic of slovenly work abroad fostered by ill-considered criticism and an advertising spirit. It is so easy to cover a canvas with paint if you can persuade yourselves that it does not much matter if a figure is out of drawing, if troublesome details are slurred; that if the difficulties of a hand or a foot are shirked it is really unimportant, that very few people know how they ought to be done, and that there are plenty of examples of such neglect to be seen in the works of men who have achieved a popular success. If in a landscape the beautiful forms of nature, the characteristic shape of rocks and mountains, the growth of trees, the tufted masses of foliage, the spring of the branches, the elegance of the sprays of blossom, the infinite variety of cloud form, all the wealth of detail which makes nature lovable and beautiful are represented by coarse and meaningless smears of paint, such as we often see them in exhibitions, are there not the "values" to fall back upon?—a famous word to conjure with, for it is of delightfully indefinite meaning. Or if the head of your Madonna or your Venus is out of drawing, badly painted, devoid of character, beauty, or expression, you have only to explain that the "tone" of the head against the sky or background is so subtly observed that the rest does not matter —and as nobody can tell whether the "value" is right or wrong, you can always meet objections by affirming that that is how you saw it. No word has been more abused by those who do not understand the real place in painting of "values" and "tone," who have learnt it as a catchword and talk about them as if they were the only thing to be considered in a work of art. It is not that you are not to study tone and values—they are of the highest importance—it is that the study of them (when they really are studied) is with a certain school made the excuse for not studying anything else. The tone of a painting is not one of the objects for which a picture is painted, it is one of the essentials which must enter into the composition of any picture. It is a means to an end, not an end in itself. If your "values" are wrong, and by that I mean if they are not in harmony and accordance with the general scheme of light and colour, one of the most important elements in your picture is neglected, and it can never be a complete work of art. They must be right or you show yourself incompetent in a particular direction, just as the perspective must be right; but correct values no more make a good picture than correct perspective makes a good picture. I dwell on this particular point because such vague generalities are part of the epidemic of slackness which is so prevalent and for which it is so convenient to find excuses. It is so easy to neglect the study of accuracy, and to be indefinite—to have no method, to try for qualities which make no demand on industry; if there is no necessity to learn, if it does not matter how a thing is done, anyone can be an artist and the scrawl of a child of seven has equal value with the work of a Titian or a Raphael. In all the discourses which it is my duty to deliver on these occasions, I have tried to impress on you that good work is the stamp of the artist. In one of the first of those which I read before you I quoted a little saying from an Italian treatise on painting of the fourteenth century, which seems to me so pregnant with the spirit of true art that I will now repeat what I then said. As it was twelve years ago it is not likely that any of those students who heard it then are present to-night. I said: "Art means above all things good workmanship . . . the simple words of Cennino Cennini with which he sums up his instructions for the proper execution of a picture perhaps best express the feelings which should be awakened by a work of art; he says that 'when you have done these things' (that is mastered all his careful methods for the execution of a painting) 'you will have made a design which will cause all men to fall in love with your work.' He says nothing about their admiring your genius or being astonished at your dexterity but refers to the work alone as stamping the artist." Thu far twelve years ago. The perils that beset the course of th student are greater now than they were then. I note tha in that discourse I dwelt on the dangers of giving an undu place to dexterity and the love of display of a facile tec nique. The danger now is different and more subtle— danger arising from the strange pretension to which I ha already alluded, that education stifles genius, and that it therefore an advantage to learn nothing. I have dwelt some length on this because I want you to shut your ea to the plausible theories that would draw you from th earnest and assiduous study without which the greatest geni cannot reach its full development. To state such genera ties as that art must be free and untrammelled, that t splendid achievements of the great men of the past are sta and played out, that the spirit of the age demands somethi new, something that shall not be taught; that the mov ment of the time is against academic instruction and pudiates it is easy enough. But if the spirit of the age detrimental is it not a spirit to battle against? Listen the view of one of the greatest sages and healthiest min of the eighteenth century on the spirit of the age—the view the great Goethe: "What you term the spirit of the tim is at bottom only your own spirit in which the times a reflected—a miserable spirit, too, it frequently is." present the spirit of the age seems to tend chiefly to sla ness in all things, and as such is a spirit to be resisted rat than encouraged and submitted to. Goethe's observation profound—those who most talk of the spirit of the age those who wish to see in it their own tendencies. Academ instruction is irksome to the idle and incompetent, theref they would have no instruction at all. Let me give y another quotation, which I translate from an essay by French author—he is alluding to those who advocate t same spirit of intolerance towards all instruction in ar-

"Not feeling in themselves the capacity for study they look upon it as a degradation, and humiliating to genius." Is not this at the bottom of much that is said and written about what are considered new tendencies in art?—tendencies which are only new because they would leave out what has always been considered most worth doing? It has come to this that the term academic is used as a term of reproach to stigmatise all work which shows evidences of serious study, all accomplishment which goes beyond sketching the superficial aspects of nature. Apparently it is wrong to study the works of the great masters in the sense of Sir Joshua Reynolds's dictum that "the daily food and nourishment of the mind of an artist is found in the great works of his predecessors. There is no other way to become great himself"; and further, to be taken in connection with the expression of this view—constantly inculcated throughout his discourses—"I should hope, from what has been lately said, that it is not necessary to guard myself against any supposition of recommending an entire dependence upon former masters. I do not desire that you shall get other people to do your business or to think for you. I only wish you to consult with, to call in as counsellors, men the most distinguished for their knowledge and experience, the result of which counsel must ultimately depend on yourself." While such principles as these are condemned as academic, the slavish imitation of the latest extravagance of a decadent clique is applauded as evidence of an original and independent spirit. I am not pretending that all criticism * of modern work is conceived in this vein, but there is a large coterie of writers whose noisy asseverations cannot but reach the ear of the student and have a most deleterious influence upon him. A copy of the discourses of our first President is given with each of the prizes, and I would recommend you to read them again and again and master their wise precepts as an antidote to such frothy outpourings.

There is no more original painter than Reynolds—no one can accuse him of imitation; he always strikes out a line for himself; every picture is a separate conception—but you can trace everywhere the influence of his study of the great men; he aspired to rival them and in many cases he proved himself their equal, but he never copied them. I remember a portrait in one of our winter exhibitions which for profound rendering of character and masterly execution (masterly in its simplicity with no effort at display) was equal to Titian himself; but it was no copy, no trick of imitation of a manner (Titian in fact has no manner, he is nature itself); it was a splendid illustration of his own advice to students and the students of this Academy of his foundation: "Study nature attentively, but always with the great masters in your company." I could enlarge at length on this theme, but it is one which I have tried to impress on you in all my discourses, and I should only repeat myself by going further into it.

The main object of academic instruction should be to direct the student towards the best way of expressing himself, the impressions he will receive from nature and the thoughts which arise from them and from his own inherent predilections. Again and again I repeat what I have said before, that it is only by assiduous study that an artist's original gifts can be developed. What we who arrange the courses of study in the schools have to consider is how this can best be done. I touched on this point in my discourse of two years ago, a discourse which an untimely illness which kept me to my bed prevented me from completing. There are no doubt students here who may remember some of what I said on that occasion, but there are many who have come into the schools since then, and I may be excused if in some of my remarks I go over the same ground again.

Some eight years ago a serious change was introduced in the system of instruction hitherto pursued in the Royal Academy. It was considered that the schools of the Academy should be what may be called a finishing institution; that there should be a higher standard for admission, and that by omitting the more elementary stages of instruction, subjects of study could be introduced for which up till then there had not been sufficient time or opportunity. We hoped that the necessary preliminary instruction might be obtained from schools of art outside the Academy, and that candidates for admission would come here well-grounded and be able to take up at once the higher class of study which was the curriculum of the upper school. The lower school was in fact abolished. I myself was not greatly in favour of the change. I have a great belief in the wisdom of our predecessors, who evidently thought that if the Academy was to have an influence on the career of its students it should be exercised early; but the reasons for the change were in themselves good if the premises on which they were founded were substantial.

This experiment proved a failure, and at the time when I read my last discourse the new regulations were in preparation. They are now in force, and the lower school has been re-instituted on the old system. The truth is that the foundations were not substantial; the system of instruction given in most of the schools of art whose students came up as candidates was unsound, more unsound than it used to be, and is daily becoming more so under the influence of irresponsible and ill-considered talk. Sketching (for frequently it is no more) from the life in charcoal, a medium by which a pretty and illusory effect can easily be produced, has taken the place of that searching study of form and modelling from the antique and from life which was carried out (sometimes, no one will admit it more readily than I do, to excess) under the old system of instruction which has been the foundation of all good teaching in all times. That such a system may at times lead to an academic style, using the word in its disparaging sense, cannot be denied; but everyone, I think, must agree that the academic painters of Italy and France in the seventeenth and eighteenth centuries had a complete mastery of their style; their failing was in what they did with their accomplishment, not how they did it. The spirit in which the great artists of the Renaissance worked was gone—only the letter remained; but no one can deny that the handwriting was excellent. I have often envied the power of painting, the mastery of modelling, and even the fine drawing of the extremely uninteresting paintings on our staircase in this building; it is complete, harmonious, and done with consummate ease and command of material; the fault is that it all means nothing when it is done beyond a conventional treatment of nymphs and gods and goddesses in conventional attitudes under conventional conditions. But the work is the work of a man trained to absolute mastery in his craft. If the artist had anything better to express he was at least in the position from his training to express it admirably.

I suppose that there never was a time when there was less danger of art being hampered by traditional conventions than the present; the spirit of independence is too strong, so strong as almost to amount to what would be called anarchy in a State. There is rebellion not only against convention, but against guidance of any kind, either of tradition or authority. A spirit of independence is no doubt an admirable thing—indeed, when the tradition of a great art is effete it can only be revived by fresh and vigorous minds shaking off the trammels of convention. But it is a spirit which not seldom shows itself in a refusal to learn what experience has shown to be necessary and good, and under the dread of being academic finds an easy excuse for shirking the difficulties and drudgery which are inseparable from education in art as in other things. I have made use of the term drudgery in connection with the process of learning, but I do not believe that any student who feels an enthusiasm for the art which he has taken up and who loves his work has the feeling that there is drudgery in it. Whatever the work may be, the true artist enjoys doing it as well as he can; certainly there is no drudgery in the study of painting comparable to that which a musical virtuoso has to go through with wearisome reiteration in practising scales and exercises.

I believe, however, that drawing from the antique has been considered a form of drudgery; it is difficult to say why, except that the spirit of independence to which I have referred and which refuses to descend to accuracy and thoroughness condemns it as requiring too much painstaking. Be this as it may, drawing from the antique has fallen into disfavour of recent years. I have in former times expressed myself with some vehemence against the antique as a means of study; but never against the use of it as a means of acquiring a knowledge of the human figure, nor have I ever advocated its omission from the course of study; but it was against the misuse of it which was then prevalent—a misuse against which I battled strenuously when I was first appointed Slade Professor at University College some forty years ago, not only in my lectures and by the practice in my own school, but later when I was made Director of the National Art Training Schools at South Kensington. Briefly, it had then come to this, that the antique was not used so much to give the student an adequate knowledge of the human figure, its proportions and its capacity for beauty as developed by

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* I use the word criticism as convenient, but its application to much of what passes under that name is unjust, as criticism means considered judgment, and neither extravagant eulogy nor vituperation can be considered as criticism.

the Greek sculptors, but by the method of elaborate stippling then in vogue led rather to the acquisition of an agreeable but unintelligent sort of lithographic shading. But I have always considered, and still consider, the study of the antique figure an absolutely necessary preliminary to study from the living model. Intelligently taught and intelligently practised, there is no drudgery in drawing from the antique. I distinctly remember that a drawing which I made of the Apollino in the Ecole des Beaux-Arts at Paris was a source of great delight to me, not only from the pleasure of making a thorough and conscientious study, but in rendering the elegance and grace of the forms and the subtle delicacy of the modelling. This drawing was, I believe, quite complete in every detail, and was done in six evenings of two hours—the time for which the cast was placed in the school; at the end of that time it was removed and another statue put in its place.

Doubtless the reaction against such a prolonged and laborious system as that to which I have just referred has something to do with the discredit into which the use of the antique as a means of study has fallen; possibly, also, the impatience of teachers and examiners, tired of seeing the same figures—for the number of those from which the student can draw is limited—coming forward year after year, and forgetful of the fact that to each student it is a fresh object of study; but still more the anxiety of the student to "get into the life," which seems to him more attractive, and possibly less exacting in its demands for steady accuracy, the shifting of the living model affording an excuse for loose work and want of completion of the more troublesome details.

As I have said, I have never allowed that studies from the antique are a negligible quantity in an academic course. The mere fact that the figure is before the student without change, and that his drawing can be compared with it point by point, requires a correct rendering of its outline and modelling on the part of the student; it facilitates the attainment and habit of accuracy, which could only be acquired by a long process from the living model; if, indeed, it can ever be acquired without some such preliminary study. It is certain that work done from life, without the previous acquisition of habits of defined and accurate rendering of form, is answerable for much of the loose work which is now so prevalent, and which taints so much of the work sent up for exhibition. The leading forms are also expressed in the antique with the simplicity and definition which the Greek sculptors knew to be typical in their various characteristics, and are therefore more readily understood and show the student what to look for when, as is often the case, unless the life-model is exceptionally good, they are ill-defined or mis-shapen. He learns, in short, the normal forms which are common to the human race, and learns them in their best expression; and he acquires not only a knowledge of the correct proportions of the human figure, but a general sense of proportion which becomes instinctive and is indispensable, especially if his aims extend beyond the commonplace and are directed towards the nobler forms of art. Add to this that he learns at this stage of his studies, under proper direction, the habit of good workmanship, so essential to the artist, much more easily and rapidly than he could gain it when before the constantly changing living model, when his faculties are engaged in getting at the correct form under much more difficult conditions. Again, he is not puzzled and distracted from the study of the forms by the discolorations and deformities which so often obscure them, especially the lower limbs and extremities, in the common model, and are so disturbing to the tyro in working from the life. Further than this, I look upon drawing from the antique as a most valuable test of the student's capacity for his art; if he is incapable, after a sufficient course of practice in drawing, to render correctly and with feeling a figure which remains unmoved for as long as he requires it, and is definite and distinct in its outline and does not vary in its light and shade, he is not likely to obtain a happier result from the more subtle and less defined forms of the life-model. If he is too impatient to devote his attention to his work in this stage, if he looks upon it as drudgery, and is so vain as to consider it a "degradation and humiliating to his genius" to have to put his best work into such studies, I can only repeat that impatience and vanity are no signs of genius or talent, and can only hamper the development of his powers.

These remarks on the subject of the antique I have repeated from my last discourse, as the antique has now become again an important part of the school curriculum, and is used, as of old, as the test for admission as a probationer; and I think it desirable to give our reasons for this reintroduction, and I hope that these may appeal to you, and
if you have any idea that there is drudgery in such studies,
to consider what I have said and endeavour to take an
interest in the work; you will find that it repays you.

I have sometimes in these discourses entered at some
length into the consideration of the works sent up in competition for the prizes. I do not propose to go far into these
matters on the present occasion, but there is one point to
which I cannot help making some reference, nor can it have
escaped your own observation. Last year I gave no address
to the students—this rather serious duty falls on me only
once in two years. The rapidity with which those years come
round is somewhat disquieting, the "anni fugaces" slip
away with painful swiftness; but I think I held up a warning to the male students after I had distributed the prizes
that they must look to their laurels, as so many of the prizes
had fallen to the female students. This year I regret to say
—I regret it not because the young ladies have been successful, but for the tarnished honour of my own sex—*all* the
principal prizes in the painting school, except the painting
from the nude model, beginning with the gold medal, have
gone to the women. I ask why this is. The answer,
think, is obvious—the female students are in earnest an
work hard, the men are slack and either do not know how t
work or do not sufficiently care. The men, I suspect, ar
more under the influence of the "spirit of the times" an
listen to that deadly, irresponsible chatter about geniu
being independent of study, and become slack in their attend
ances, slack in their work in the schools and out of it.
have no other way of accounting for it. Whatever th
"spirit of the times" may have to say about the relativ
positions of man and woman, the *capacity* of men to exce
has shown itself from the beginning of the world, and
believe that while the men talk and believe themselve
superior the women are working patiently and steadily an
with an energy which is imbued with the love of their work
and through their devotion to it is rapidly gaining for the
a power which, unless the men stand to it and show mor
determination, will slip from them. I admire particularl
the energy of action and expression which the winner of th
gold medal has put into her picture, and the rigorous an
searching study of form, and, most of all, the strenuo
grappling with the excessive difficulties of figures groupe
together in violent action. It is these qualities which ha
gained her this the highest distinction which the Academ
has to bestow, with something like enthusiasm on the pa
of the members; and it is for these qualities that certa
faults which come of inexperience are not counted again
her. Here is a neglect of those important "values" with
vengeance; the black shadows of the studio under the op
sky, a white sidelight on the groups, with a deep red suns
sky in the background, and other failings of the sa
character, but these have only to be pointed out to
mended. She has let her poetical feeling for the sinist
impressiveness of the blood-red sky run away with her,
the detriment of the unity of effect which must govern
parts of a picture. But I will guarantee that these fau
will not be repeated, and I prophesy a successful career
this young lady if she has strength and health to pursue
course with the courage and devotion which she now sho

I must not leave my subject without a word of high co
mendation for the groups done for the gold medal in scu
ture. They struck me as being of unusual excellence. T
preposterous abnegation of form and definition wh
characterises a certain class of decadent work, now perh
not so much in vogue as it was, has not penetrated into
schools. None of our sculptor members have ever given
to it, and their admirable influence is shown in the ex
lence of the students' works. They at least know that wi
out definition of form sculpture is meaningless—in paint
great qualities of colour and masterly rendering of ef
may condone want of definition, not want of knowledge
form; but sculpture exists by that and that alone, and i
a pleasure to see the thoroughness with which the groups
studies in this section of the school are carried out. I
glad to see a great advance in the studies of drapery in
painting school, which is shown by an unusual excellence
the competition for the cartoon of a draped figure. S
of these show a genuine understanding of drapery as s
as of value in expressing the lines and movements of
figure and limbs, and are not mere studies of stuffs thr
anyhow on to the figure. Drapery, says Reynolds, is perh
the most difficult part of the art, by which he means not
painting or drawing of it, but the arrangement, w
should not only be beautiful and harmonious in its
and masses and contrasts of slender and broad in the fo

but must express movement, and can even convey what the previous movement of an impersonation in a picture has been. You have only to watch any woman walking in the street to see how the folds of the skirt—that is, when the skirt has folds; I will not say it of the hobbled skirt—how gracefully they follow and express every movement, falling in and falling out as the limbs move alternately, to see what possibilities there are in drapery to help you in the action of your *dramatis personæ*. Raphael, above all artists, is supreme in this respect. His draperies are of exquisite beauty in their lines and masses; there is never an ugly break or a poorly composed assemblage of folds—they are supple and clothe the figure with ease. The reason of this is that they are founded on the study of figures in action and have no suspicion of the lay-figure about them. Though they are consummate art they are entirely free from artificiality. By these remarks, which are somewhat parenthetical, I hope to induce you to study the beautiful draperies of the great masters as you may see them everywhere in the National Gallery, and still better in the engravings from them, of which there is an ample store in our library. I do not want at this stage of my discourse to go into details, but I would recommend you to look at the picture of St. John the Baptist seated with six saints, by Filippo Lippi, in the National Gallery, in which to my thinking the draperies fall with a grace incomparable. But similar examples from the Florentine school might be multiplied indefinitely.

With these remarks, which I was led into making and which only touch on the fringe of this important section of the art, I will conclude my address. I have spoken frankly to you where I have thought you have not done your best. I want you to consider it a privilege to work in these schools, and to make the very best out of the instruction which you get here and which you can obtain nowhere else; and I especially want you to take to heart what I have said about that spirit of the time which shows itself in indolence and the desire for notoriety at any cost, and to consider whether there is not truth in it, and how far you are yourselves influenced by it. Good work *can* be done—many of the works sent up in this competition show it; but I should like to see it more universal in these schools.

THE ARCHITECTURAL ASSOCIATION.

A COMBINED ordinary general and Camera, Sketch, and Debate Club meeting of the Architectural Association was held on Monday, December 11, at 18 Tufton Street, S.W. Mr. Gerald C. Horsley, President, occupied the chair.

It was stated that the next meeting of the Camera, Sketch, and Debate Club will be held on January 18, when Mr. C. G. Boutcher will read a paper entitled "Architectural Perspective." The first spring visit is to take place on January 6. Three new members were elected, viz., Mr. A. Harris, Mr. R. Sheppard, and Mr. R. S. Wilshere, all of London. A vote of thanks was passed to Mr. Arthur T. Bolton for presenting diagrams of Jacobean plans to the school. Mr. Theodore Fyfe was nominated to serve on the Council to fill the present vacancy.

Mr. Alan E. Munby, M.A., A.R.I.B.A., then read the following paper, entitled

Is the Texture of Materials a Fetish?

When I mentioned the title of this paper, which your Secretary has been good enough to select for me, to an eminent official of the Institute in the hope that he would supply me with many volumes dealing with the subject, unable to do so, he remarked, "Well, I suppose all you can say is 'No.'" My rejoinder was that, although he had gauged my literary powers with more severity than kindness, I felt a doubt as to whether so terse a paper would be exactly what was expected of me, and whether it was the best preparation for a discriminating discussion.

To begin with, what is texture? One's first impulse is to appeal to Dr. Johnson and digest his definition, but the understanding of terms is not really synonymous with the defining of them, and it is the understanding with which we are now concerned. We probably all understood the feelings of the artist recently depicted in *Punch* who, on being asked in a restaurant by the amazed Phyllis whether he were really going to take brown sugar with an ice, replied, "I am, though; it gives it a texture." We all know that a vanilla ice, with its absence of life and its unvaried surface, would be vastly improved in appearance by the addition of brown sugar, reflecting light in various directions and presenting irregularities of surface which must add interest and thus tempt investigation. It is with this question of variety that, I take it, texture is mostly concerned. Why is a Tube station built of glazed faïence wholly unpleasing to the senses, when a dilapidated plaster cottage, stained and weathered with age, is able to charm our vision? Does it not depend upon the variety displayed by the latter? Select any particular feature of the plastered wall, say, a brown stain, on a sufficiently minute scale to deprive it of variety, and repeat it as the whole wall; the effect is dull and devoid of interest; the surface would lack texture owing to repetition. We are, be it observed, speaking of repetition of featureless surfaces, not repetition of architectural forms; few, indeed, would criticise the view that repeated architectural features, if these are initially good, make for repose and stateliness in buildings more than anything else.

If, then, we attempt a definition of texture, it should perhaps be variety on a minute scale. And we have now to inquire as to the nature of this variety. Has it a real existence as a physical entity, and, if so, does it appertain to the material itself, or to the conditions of our inspection as regards light and atmosphere; or is it a thing merely of artistic cultivation or inborn feeling; or result of mental training, whereby some and not others are affected?

Perhaps these questions are best answered by taking some individual substances and considering their physical properties and conditions of inspection.

Let us take the material which forms the external surface of the vast majority of buildings in this country—brick. There are some hundreds of varieties of bricks, but we will confine ourselves to the consideration of two. If we go north of the Trent and examine some of the important brick structures we shall find that the pressed bricks of Accrington have a great vogue. They are a dull red, with a semi-vitrified face, and therefore are non-retentive of dirt and not subject to surface erosion; moreover, they are large, being a full 3 inches thick, like most North-Country bricks. Very little variety is to be observed in them, and the mellowing hand of time offers to such materials in vain the insidious germs of decay. As they are built up so will they remain in tone, character, and semi-sheen.

Now turn to the little hand-made, sandfaced bricks, such as those obtained from Clare, in Suffolk, rough, rich in purple patches, and bubbling with variety. Why do they charm us? Is it not their irregularity? A sand ripple here, a flint there, a purple header to the right, a brown one to the left; it is surely variation which produces upon certain minds a sense of artistic satisfaction and a quiet feeling of repose and harmony. This state of mind, however, is not universal. I remember a builder who had much admired an architect's work express his disapproval in no measured terms at the (to him) inartistic effect of mortar joints an inch thick; and I have heard the exclamations of approbation from a clerk of works on viewing a tiled roof of hard-pressed tiles laid with a mechanical precision worthy of a dividing engine. Whether such approbation came from a well-ordered mind or from one untutored is for your decision. Brick architecture is, indeed, capable of an immense variety of expressions according to the size and nature of the component bricks, quite apart from architectural treatment, and Nature lends further aids with her soft touches of vegetation. One of the most beautiful pieces of brickwork I have ever seen is that composing the Almshouses at Audley End. There is nothing very striking in the design of the buildings, two brick string courses, brick mullioned, circular-headed, leaded windows, very irregularly spaced, and running out of the main line of roof; gables in brick, some of them unwindowed.

But the rich mellowness of the whole building bemossed and lichened, as I recently saw it, in the full glory of a sinking sun, left a most vivid impression on my mind.

It is curious to note withal that, whether texture be a fetish or not, the forces of Nature seem to treat more kindly those materials which possess the charm of irregularity of surface than those which attempt to exclude her weathering and eroding agencies. The hand-made tile, rough and aborbent, which makes a home for the seedling and the moss spore, is oftentimes when removed found to be as hard and durable as though made yesterday instead of a century ago; whereas the pressed tile and the terra-cotta block, unless made with consummate care, soon flake and shell, giving an appearance of dilapidation which is anything but pleasing, because it is the direct result of purely mechanical disruption. But even bricks and tiles are to some extent artificial, and what texture they possess is the result of mechanical treatment. Let us now turn to some materials of Nature's own composing and see whether this quality of texture is really a thing to be found in the mineral products of the earth.

What of stone? We must dismiss from our minds the lofty Gothic spire, with its delicate outline laid against a blue vault of sky, or the civic dignity of a Renaissance façade, and only think of the flat surface of an individual piece of stone.

In our big cities we are apt to employ stone from too purely an architectural standpoint—*i.e.*, to utilise it for the expression of conventional features more than for what it can do of itself. Perhaps the unequal struggle between the material and the enveloping effects of city grime is an excuse for this attitude, but away from the town the material may be given scope for its own efforts unaided by form, which, on the score of cost, often proves its only possible use. Would, indeed, that it were more often so employed, and that the speculative designer would stay his hand on the production of his fretful and pretentious ornament, and retain his masons' wages in exchange for a little thought in the selection of his material. That stones differ in texture is a proposition which hardly requires proving, but how much they differ is perhaps not generally realised. Again, we find that when we rely on the material itself for effect, coarseness of grain provides, at least, to the possibly disordered brain of the artistic, the greatest sense of charm. A plain window dressing in Ham Hill stone is delightful; the same treatment in York stone is dull and mechanical. In London we all use Portland stone, but whether it is because we have been brought up on the pabulum of successive repetition in the matter of specifying, or because the builder has a sacred horror of anything outside the oolite formation, has never been quite clear to me. I do not wish to degrade the theme of my discourse to a mere lecture on building stones, but, since texture is intimately connected with minute physical properties, I will venture to show you with the aid of the lantern a few specimens of enlarged photos of actual stones.

Now let me turn to another material of Nature's own production—timber.

For nearly all purposes for which timber is required in situations in which its characters can be observed, it is wrought, and therefore any texture it possesses must be due to the porosity and markings of the material. No timber to my mind is more attractive than that left clean from the plane and innocent of paint or varnish. Such absence of treatment is not always possible, however, nor desirable in all situations, but where protection is required beeswax rubbed into the pores of the wood in a suitable solvent will still allow the texture of the surface to remain, and will not prevent the timber from toning. Naturally, wood which is figured and which is cut to display the figure to the best advantage presents more attraction than unmarked timber, but even a piece of yellow deal will, after a few years of exposure, assume a tone which has much individuality. That woods, even of the same class, differ considerably in structure and hence in texture will be evident in viewing the sections of a few timbers.

Compare the effect of an old chair possessing the hand polish which continual use can alone afford with the same piece of furniture varnished after leaving the cabinetmaker's shop. The wood is the same, but the texture is, in the former case, brought out and the tone of the wood mellowed; whereas in the latter such variety as the wood possesses is at least partly concealed by the unbroken gloss of the varnish, which reflects much of the light falling on it direct from its outer surface. In this connection it is of interest to note the growing public appreciation of flat as against bright surfaces. A flat surface allows the penetration of light, and hence admits of a truer appreciation of the nature of the substance, more especially when viewed obliquely. The more the light is reflected from the surface of a body without penetrating into it the less will the particular characters of the substance on which the light falls be transmitted to the observer's eye, till in an extreme case we get a mere mirror, itself a characterless thing, returning the light exactly as it receives it. We may therefore take a perfectly reflecting surface as the antithesis of wood texture, which leads us to a mental reflection on the metals which perhaps of all our materials show the least texture, and, apart from cases of imposed form, a surface of metal is not usually regarded enthusiastically for architectural treatment. Yet metals are not textureless, and all have in reality a crystalline structure, which may be brought out by etching their surfaces. Our dependence on texture is well illustrated by reflecting on the distress we should experience did a client insist on his house being faced externally with sheet-iron plates; but new methods of construction are constantly calling upon us, and, should means be found to circumvent the atmospheric oxidation of iron, such a problem might be assigned to any architect. The economical treatment of a façade comprising only textureless materials might well form a subject for a prize essay. Where a metal is soft and easily oxidised it is naturally amenable to assuming a texture through irregularities of surface. Old lead, particularly if cast, even in a plain water-pipe, may be very attractive to those possessing a certain mental attitude. Yet that roughness of surface does not constitute effective texture even in a metal seems to be proved by the (at least to some of us) horrible appearance of metals applied in the form of powder to surfaces. Aluminium paint, for example. It is possible that in such cases the sense of unreality causes in honest minds a feeling of revulsion similar to that produced by 5-inch by 1-inch stained deal—garden-city oak, half timberwork—but the psychological dissection of one's feelings and the expulsion of bias in the matter of one's attitude towards so complex a thing as texture is beyond my mental capacity. I have endeavoured to deal with some more prominent materials individually, but the conditions of their inspection must not be overlooked. The question of atmosphere in connection with texture was raised at the beginning of this paper, and undoubtedly atmospheric influences do affect the feeling which materials display. I have never seen a Tube station nestle even in a London fog at sunset, but undoubtedly the hardness of its lines is lessened and its enamelled surface is deadened. Distance does, indeed, often lend enchantment, because of the softness it imparts, and possibly more owing to the inventive scope it gives to the mind, which mentally fills out the picture in a manner best suited to the timbre of the observer.

Atmosphere is not, however, merely an abstract artisti expression; a definite absorption of light takes place between its reflection from the object in its passage to the eye of the observer, so that objects viewed through vacuous space would not have quite the same appearance as those viewed through air, more especially if that air contains, as it generally does, floating solid particles.

The irregularities of a surface are interpreted to us by means of light and shade. It is the shadow cast by the projecting pebble which makes its projection apparent, and the strength and sharpness of that shadow will depend upon the nature of the light and the distance of the object. The sharp black shadow such as is cast by an arc-lamp is not wholly pleasing; its contrasts are too violent, and deprive the subject of that continuity which is essential to artistic effect. Atmosphere, by toning down the shadow effect, gives in the beautiful half-tones the soft, almost inimitable graduation of light upon a rounded surface, which forms so essential factor in repose.

        Eve's golden rays
    Falling on glade and stream,
    Flecking the forest path with slanting beam
    Made glorious by her minister the shade,
    Sinking through the distant air
        The purple haze.

There is still one great factor in connection with textu which I have not touched upon, and that is colour. It wou be impossible to trespass upon your patience by attemptin to give any details on this subject. Physically, howeve colour is due to two things—the composite nature of mo sources of light, which are really made up of coloured ray and the power of most bodies upon which such rays fall absorbing some of these colours more than others, and th reflecting a mixture of rays dissimilar to those falling up them. Ordinary sunlight and some artificial lights (such acetylene) are composed of the various colours seen in t rainbow, which mixed together produce the sensation of whi When such light falls on a red brick most of the blue ra are absorbed and converted into heat; the reflected ligh therefore, contains such a preponderance of red rays that t object appears red. It is obvious from these consideratio that the further light penetrates into a light-selecting coloured body the deeper will be its colour, since the less w be the amount of unaltered light merely reflected from external surface. This is well illustrated by the fact th transparent coloured bodies in large pieces are deeper in ti than the same substances in the form of powder. Colour not an innate property depending upon the material, h depends upon light and other conditions. As it can har be denied that texture is affected by colour, this quality m then be influenced by the nature of the light in which t body is viewed. If proof is wanted, it is only necessary repeat the make-believe ghost stories of our children's da and enter a darkened room with a flame tinted with sodi vapour from salt.

The wonderful play of colours which we value so much many materials; the beautiful veins of marble giving greens, reds, and yellows; the warm, cheering tint of H

Hill stone; the blending of purples, browns, and reds on our sand-faced bricks are all due to the wonderful variety of absorptive properties possessed by bodies of slightly different chemical compositions. Further, be it noted, nearly all colours in materials are due to that, at least in artistic circles, much-abused metal, iron, in an oxidised form.

I have endeavoured to show that the texture of materials, the existence of which, I think, it is not proposed to deny, depends upon various factors operating in various degrees. Some of them are certainly psychical, and are thus amenable to the application of scientific investigation; others are, no doubt, temperamental, and hence are hardly reducible to distinct terms in the present state of psychological research. I take it that you have not called upon me to answer the question which forms the title of this paper. It may be that the correct attitude towards texture is that of the mechanically-trained mind, which makes symmetry of form down to the last mathematical detail a fetish, and that the worship of these irregularities which constitute texture are the outcome of a disordered brain distorted by long hair and a velveteen coat. The decision I leave to you.

(*To be concluded.*)

NOTTINGHAM ARCHITECTURAL SOCIETY.

THROUGH the kind invitation of Lieutenant-Colonel Brewill, F.R.I.B.A., the Nottingham Architectural Society spent an interesting hour inspecting the new Territorial headquarters on Monday afternoon, December 4. Lieutenant-Colonel Brewill conducted them over the building.

As the Society had paid a visit during the early stages of construction, it was especially interesting to note the finishing of the work.

The building is to house the five branches of the local Territorials, and the architect (Lieutenant-Colonel Brewill) has very cleverly arranged separate accommodation for each branch, while fitting them into one whole scheme. An electric lift is provided for carrying the heavy equipment to the upper floors, and a system of telephones will be installed, whereby every room can be put into instant communication with every other portion of the building. The stores will accommodate at least 1,000 rifles and 600 saddles. Stables are provided for sixteen horses, and in the sick bay is an arrangement for slinging a sick horse if necessary. The imposing front on Derby Road has been built in red sand faced bricks and Hollington stone. Perhaps the part which impresses the visitor most is the large drill hall, 130 feet long by 80 feet wide. This large floor space is entirely free from columns, and is covered with a light steel roof of 80 feet span, with a glass skylight the length of the hall. In this the Keith gas light has been substituted for electric light, being, in the architect's opinion, more suitable and economical. But even then it will require eight large lamps of 300 candle-power each to light it at night. The ventilation is through louvre boards in the roof always open. All floors are in Hennebique reinforced concrete, and average 3 inches thick.

Lieutenant-Colonel Brewill was heartily thanked by Mr. E. R. Sutton and Mr. A. W. Shelton, on behalf of the visitors, for his interesting description.

Some of the party afterwards visited the site of the explosion on Derby Road, by invitation of Mr. Calvert, the consulting architect, and were much impressed with the havoc wrought.

The afternoon concluded with an inspection of Mr. Mitchell's new garage in Toll Street. In the absence of the architects (Messrs. Booker & Shepherd), Mr. Shelton kindly pointed out the interesting features, which are, briefly, solid steel columns in the garage on the ground floor, a reinforced concrete first floor, and a very interesting arrangement of the steel roof trusses due to the peculiar formation of the site, and a suspended lift for motor-cars.

In this form of lift there are no guides to obstruct the floor space, which is a very important point in planning a garage.

The second meeting of the Designing Club was held the following evening at the Society's rooms, under the chairmanship of Mr. E. R. Sutton, F.R.I.B.A., Vice-president.

There was a very good attendance. Four carefully thought out designs were submitted for an "Approach to a public park."

The visitor, Mr. H. G. Watkins, A.R.I.B.A., who had set the conditions, gave an interesting criticism, and placed them as follows:—(1) Pro Bono Publico, (2) Dorian, (3) Carbon, (4) Member for Sark.

The Chairman, in proposing a vote of thanks to Mr. Watkins and the students who had submitted drawings, urged the importance of the students not only sending in designs but also attending and criticising them.

MANCHESTER SOCIETY OF ARCHITECTS.

AT the Sessional Papers Meeting of the Society, on December 6, Mr. Paul Ogden, F.R.I.B.A., read a paper entitled "Science and Proportion." Mr. Ogden's paper has been awaited with great interest by those who know how thoroughly he has investigated the subject he dealt with, and at the conclusion of the paper there was keen discussion on the points set forth.

The following quotation from the Greek teacher Epictetus, said Mr. Ogden, though not exactly a text, was of value to his present purpose as evidence of the Greek attitude of mind, and, with other quotations that would follow, shows how modern discussions of art and architecture might be regenerated.

". . . Seeming doth not for every man answer to Being; for neither in weights nor measures doth the bare appearance content us, but for each case we have discovered some rule. And here, then, is there no rule above seeming? And how could it be that there were no evidence or discovery of things the most necessary for men? There is, then, a rule. And wherefore do we not seek it and find it, and having found it, henceforth use it without transgression, and not so much as stretch forth a finger without it? For this it is, I think, that when it is discovered cureth of their madness those that mismeasure all things by seeming alone; so that henceforth, setting out from things known and investigated, we may use an organised body of natural conceptions in all our several dealings."

Few architects there are who do not use the word "proportion." Some few have given us diagrams setting out buildings on interaxial lines, but none have given reasons that the employment of such lines is the essence of the matter. Interaxial lines spaced a unit apart on plan, forming equal squares, have been used for the plan; and, further than this, horizontal lines for the elevations and the spacing corresponding to the ratios of the musical scale. These will be found to give an harmonious, and therefore satisfactory result. The skeleton of interaxial lines would be something like a well-tuned musical instrument on which you may play harmonious compositions should your knowledge of consonance, which to the architect means proportion, be equal to the task. Scientists assert that the ear and the eye, which are only media to the intelligence, are both affected by the same law—*i.e.* by vibrations. If rhythm and proportion are common to all objects worthy of the name of excellent, and if we could infuse rhythm and proportion into such objects we should have objects which, to the Greek view, would be what we term "the beautiful." An ancient Greek would not understand our use of the word "beautiful." "That which is excellent"; "That which is for the chief good," are the Greek views. Greek art is based on scientific reasoning. Proof may be found in Plato's "Republic," Aristotle's "Ethics," and many other works (from which Mr. Ogden quoted passages at length).

After quoting a passage from Combarieu's work "Music, its Laws and Evolution," to establish his point that music is based on science and law, and after pointing out that the same laws of proportional numbers are at the basis of chemistry and of the spectrum, the lecturer said that we must find one common rule applicable not only to architecture, but to music, dancing, painting, poetry, and all objects. The one rule is harmony, which springs from rhythm, which in turns springs from measurable and synchronous vibrations. Buildings raised upon a skeleton of lines of proportional spacing, sub-divided in measurable proportions down to the smallest ornament, might be the solution that would bring us unity and harmony. Objectors ask, "Should all the buildings in one street be on one unit?" The reply was, "It is desirable that they should have proportional units." He had that night brought before them, by means of extracts from unusual sources, theories, and principles, the result of reading outside the beaten track. Further investigation is necessary before the true principles could be gathered together.

He had not yet put up a building without using the method of interaxial lines, and the work is set out by rods cut to the length of the unit. For cottages he used a unit of 3 ft. 3 in.; houses, 4 ft. to 5 ft.; schools, 5 ft. 3 in.;

works, 10 ft., 15 ft., and 20 ft.; furniture and ornament, some measurable unit of the main unit.

Diagrams would not be given that night. They would be useless unless that which was adduced had been enough to justify continuing the work. We have lost the nature of Greek practice. Can we regain it? The law of numbers rules the world; the properties inherent in vibration, measurable, synchronous, harmonious, rhythmetic, and in consonance, are the essence of the chief good in life.

Prof. Capper, in moving a vote of thanks to Mr. Ogden, said that they were grateful for the patient research that the paper was evidence of, and admired the way the lecturer had brought his wide reading to bear upon architecture. He suggested that French Gothic partakes largely of Classical unity and proportion, in contrast to the northern Gothic.

Mr. Sellars, in seconding, suggested that beauty depended on fitness as well as proportion, and the two were not always compatible. To a sailor a ship, perfect in all her points, was beautiful because she was fittest for her work. In building, beauty was again fitness; when we have fitness we could reduce it to rule, but with new habits and methods of construction growing up, what becomes of our rules? Rules may be good for the weak, but the strong will drive his coach and six through them.

Mr. Corbett thought that a general rule would be either too wide to be definite or too narrow to be universally applicable. Greek conditions were different to modern conditions, but even their exactness was more to please their mathematicians than their artists. We must trust our trained sense.

Mr. Oldham felt that art was joy in life; but Mr. Ogden's conclusions were in contradiction to this.

Other speakers were Messrs. Hindle, Harris, Worthington, Wood, and Halliday, and after the discussion the vote of thanks was heartily accorded to Mr. Ogden.

THE INSTITUTION OF CIVIL ENGINEERS.

At an ordinary meeting of the above Institution, held on the 12th inst., a paper by Mr. T. E. Stanton, D.Sc., M.Inst.C.E., and Mr. J. R. Pannell was read describing a series of "Experiments on the Strength and Fatigue Properties of Welded Joints in Iron and Steel."

These experiments were undertaken at the suggestion of Sir John Wolfe Barry in 1908, the object being to obtain a comparison of certain properties of welded joints—made by different processes and by different makers—with the corresponding properties of the unwelded material from which the joints were made. It was hoped that by this means some estimate of the general reliability and efficiency of modern welding processes might be arrived at. In order to obtain material for the work a circular letter was sent from the National Physical Laboratory to various engineers, inviting them to submit specimens of welded joints for testing. Sixteen firms responded to this invitation, and the total number of welded joints received was 167. The method of welding and treatment of the joints was left entirely to the makers, the only condition being that all specimens should be made from bars 1¼ inch in diameter. The tests to which the joints were subjected were: first, a tensile test, and secondly, a fatigue test by the Wöhler method. The former included determinations of the elastic limit, the yield point, the maximum stress, the total elongation, and the general and local elongations.

For the rapid carrying out of the fatigue tests a machine was constructed in which the specimen was rotated at a speed of 2,200 revolutions per minute. Owing to the results of a previous investigator with another type of machine having shown a decided reduction of fatigue strength with increased rapidity of stress-alternation, preliminary experiments were carried out to determine the amount of this effect for the particular type of machine used. The results showed that for speeds of 200 and 2,200 reversals per minute there was practically no difference in the fatigue strength. The assumption was therefore made that the apparent reduction of fatigue strength with rapidity of alternation in the case referred to was a characteristic of the machine used.

The mean results of the tensile tests on the welded joints, expressed as a percentage of the strength of the original material from which the joints were made, were:—

Hand-welded iron	89.3 per cent.
Hand-welded steel . . .	81·6 ,,
Electrically-welded iron . .	89·2 ,,
Electrically-welded steel . .	93·4 ,,

Joints made by the oxy-acetylene process were also submitted by two makers, but the results were not comparable with those obtained by the hand or electric processes.

The various determinations made in the tensile tests showed a distinct want of uniformity in the material in the region of a weld, but the results of the fatigue tests proved that this does not materially affect its resistance to reversals of stress. When failure under alternating stresses of low value takes place, it is invariably due to a defect in the actual weld itself. The number of defective joints which were discovered in the whole investigation, however, leads to the broad conclusion that in important work, where the failure of any particular welded joint may involve serious damage to the structure, the subjection of each joint to a proof-load is still desirable.

COMPETITION NEWS.

Glasgow.—The Glasgow Provincial Committee for the Training of Teachers have had under consideration the question of the appointment of an architect for the new trainin college buildings. After advertising, the committee hav selected six architects, and they will be invited to send in competitive designs for the proposed buildings.

Sheffield.—The limited competition recently held for the Woodseats U.M. Church has been settled in favour of Messrs. George Baines & Son, architects, 5 Clement's Inn, Strand, London, W.C.

Correspondence

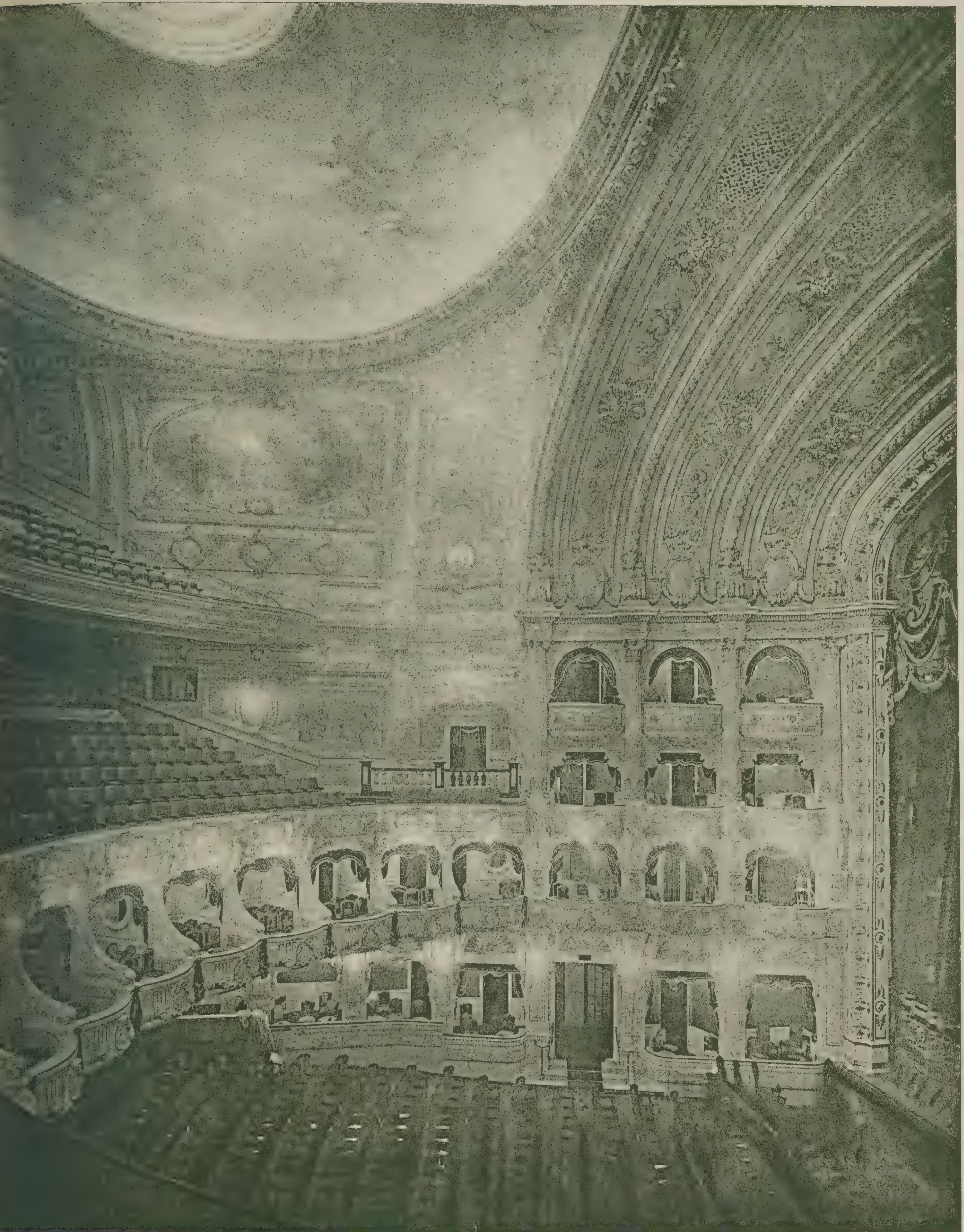
[The Editor will not be responsible for the opinion expressed by Correspondents.]

Registration of Architects.

Sir,—I beg to be allowed a few remarks on the registration of architects. Many professions and trades already posses registration, from doctors and lawyers down to chimney sweepers, so that the practical operation of different forms o registration can and ought to be well studied by architect before placing themselves under a rule they may afterward regret. I would suggest that the qualifications, examination, and fee for placing on the register should be light, an there should be several degrees depending on heavie examinations, greater practice, &c., so that the highest degre would include all, or nearly all, the F.R.I.B.A., and th lowest assistants and others who had worked and studied fo say, two years. Some such arrangement would really an not only professingly protect the public from mixing grea architects with what may be called small artistic builder and would be no hardship on anyone, since those exclude would be necessarily incompetent, the dignity and conten ment of the profession would be enhanced, and by striving t attain high degrees, or high degrees being given as a mark long practice and many and great works, credit and remunera tion being justly distributed, the superior architects wou become more and more learned and specialists in their ar and architecture in consequence would advance.

December 11. Pontifex, C.E.

The London County Council on October 17 sanction the appointment of a full-time principal of the L.C. Central School of Arts and Crafts, Holborn, at a salary £1,200 a year. Forty-nine applications were received response to the advertisement for the position, and aft careful consideration of the qualifications and experience the candidates, seven were selected for interview. Next, t choice was narrowed to Mr. F. V. Burridge, principal of t Liverpool School of Art; Mr. R. A. Dawson, headmaster the Municipal School of Art, Belfast; and Mr. B. Fletcher, headmaster of the Leicester School of Art. accordance with an order of reference, the Education Co mittee appointed Mr. Burridge as principal of the Centı School of Arts and Crafts, but as the appointment is one importance, they reported the fact for the information of t Council, the more so as Mr. Burridge was one of the can dates for this post in March last, when the Council h advertised the position at a salary of £1,000 a year. It however, pointed out that no candidates were, at that tin interviewed. The appointment was confirmed by the Cour Council on Tuesday. Mr. Burridge was born in London 1869. He was trained at King's College and at the Roy College of Arts, South Kensington, where he won the Trav ling Scholarship in 1893. He was assistant master at t Royal College, whence he passed to Liverpool.



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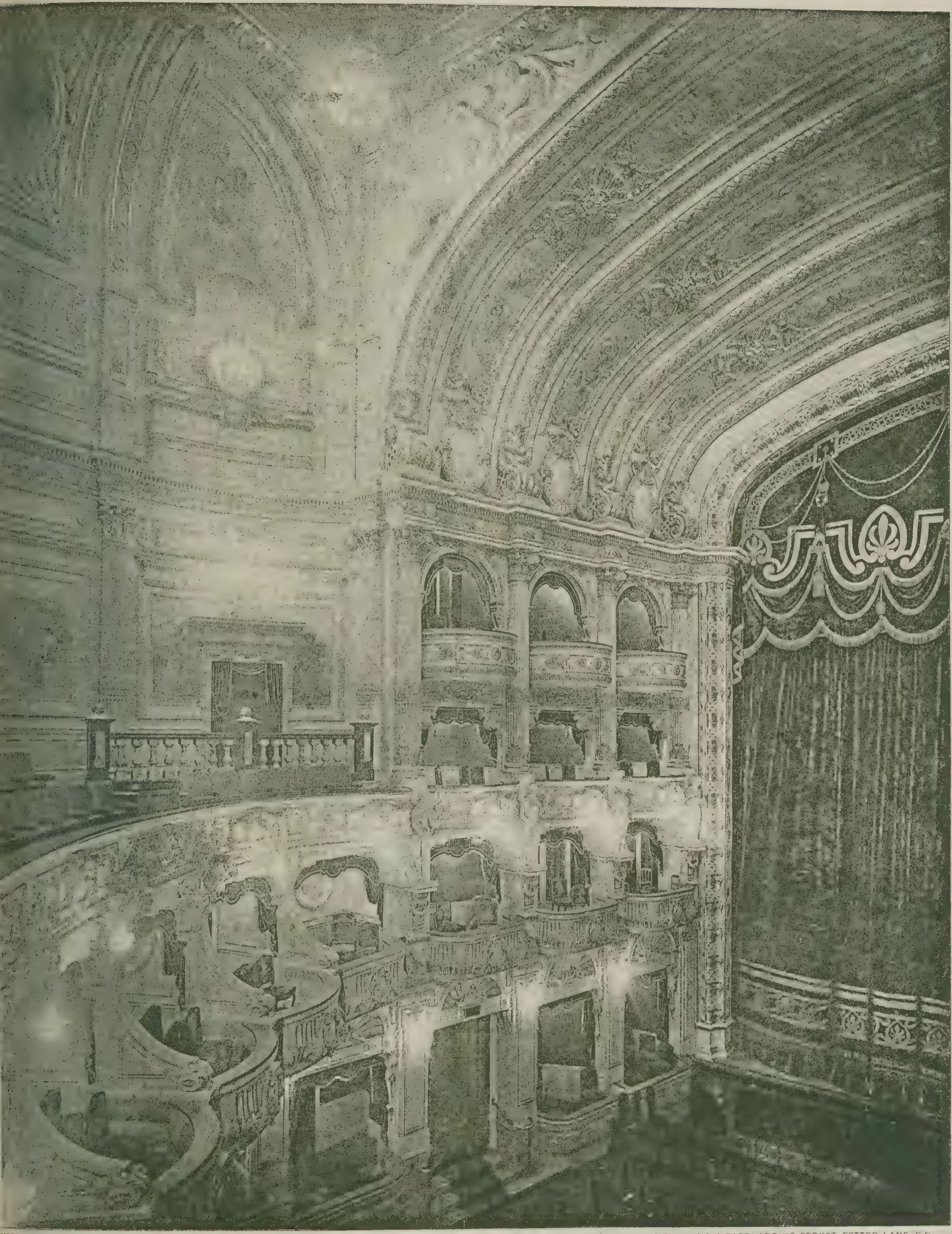
THE LONDON OPERA HOUSE, KINGSWAY: THE AUDITORIUM.

Mr. BERTIE CREWE, Architect.



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THE LONDON OPERA HOUSE, KINGSWAY: DETAIL OF BOXES AND PROSCENIUM.

Mr. BERTIE CREWE, Architect.

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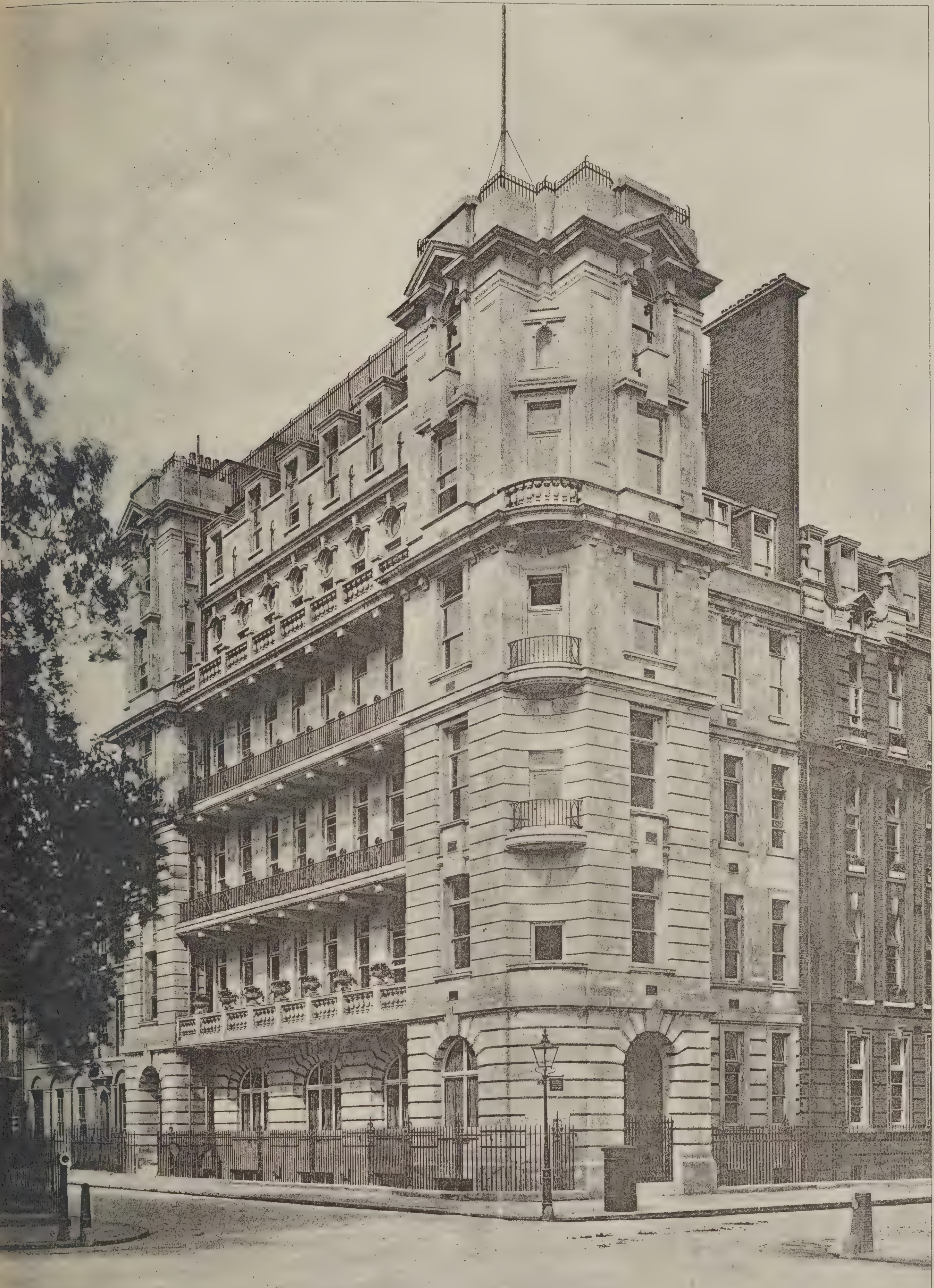

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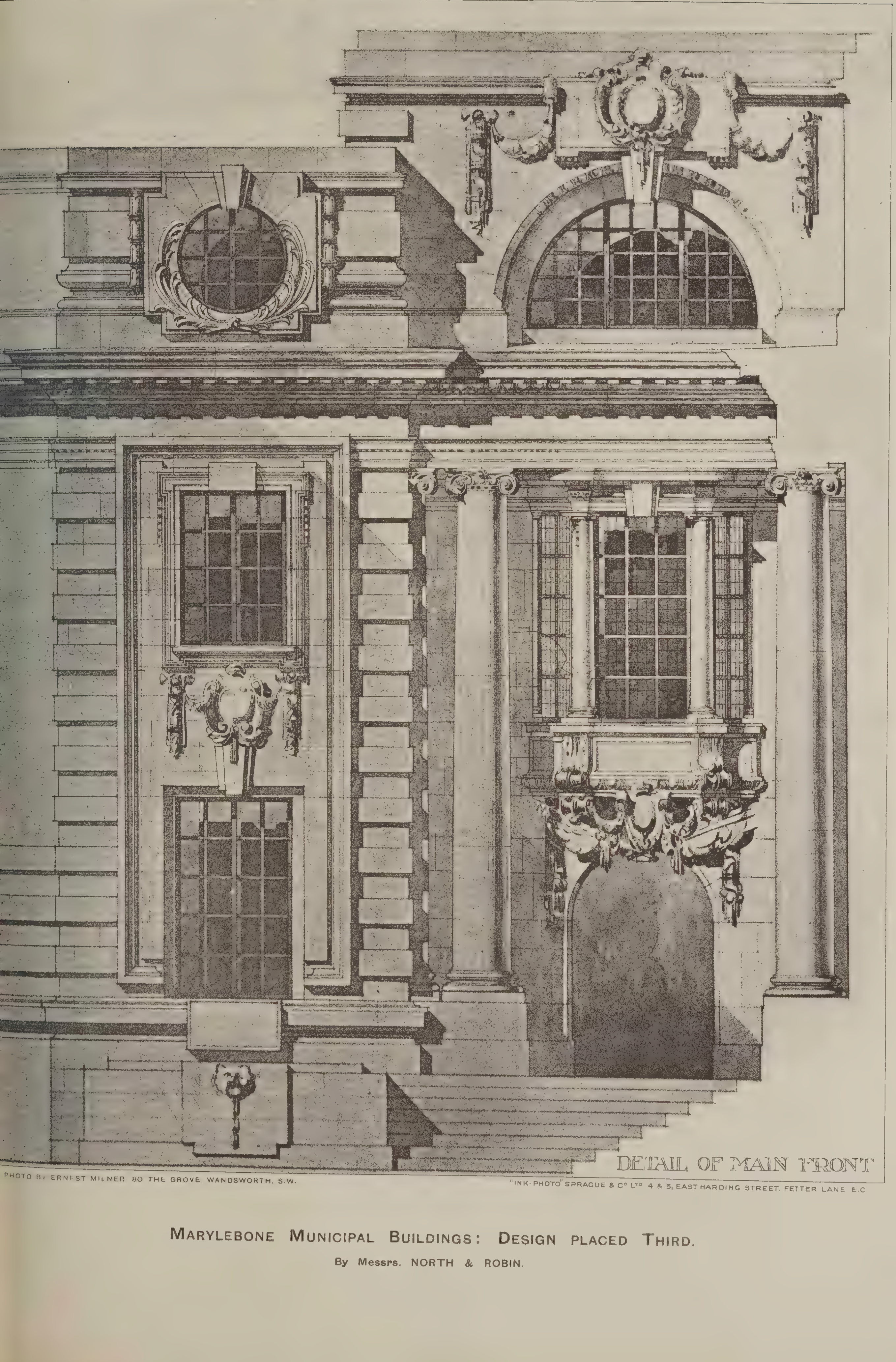
Mr. EDWIN T. HALL, F.R.I.B.A., Architect.



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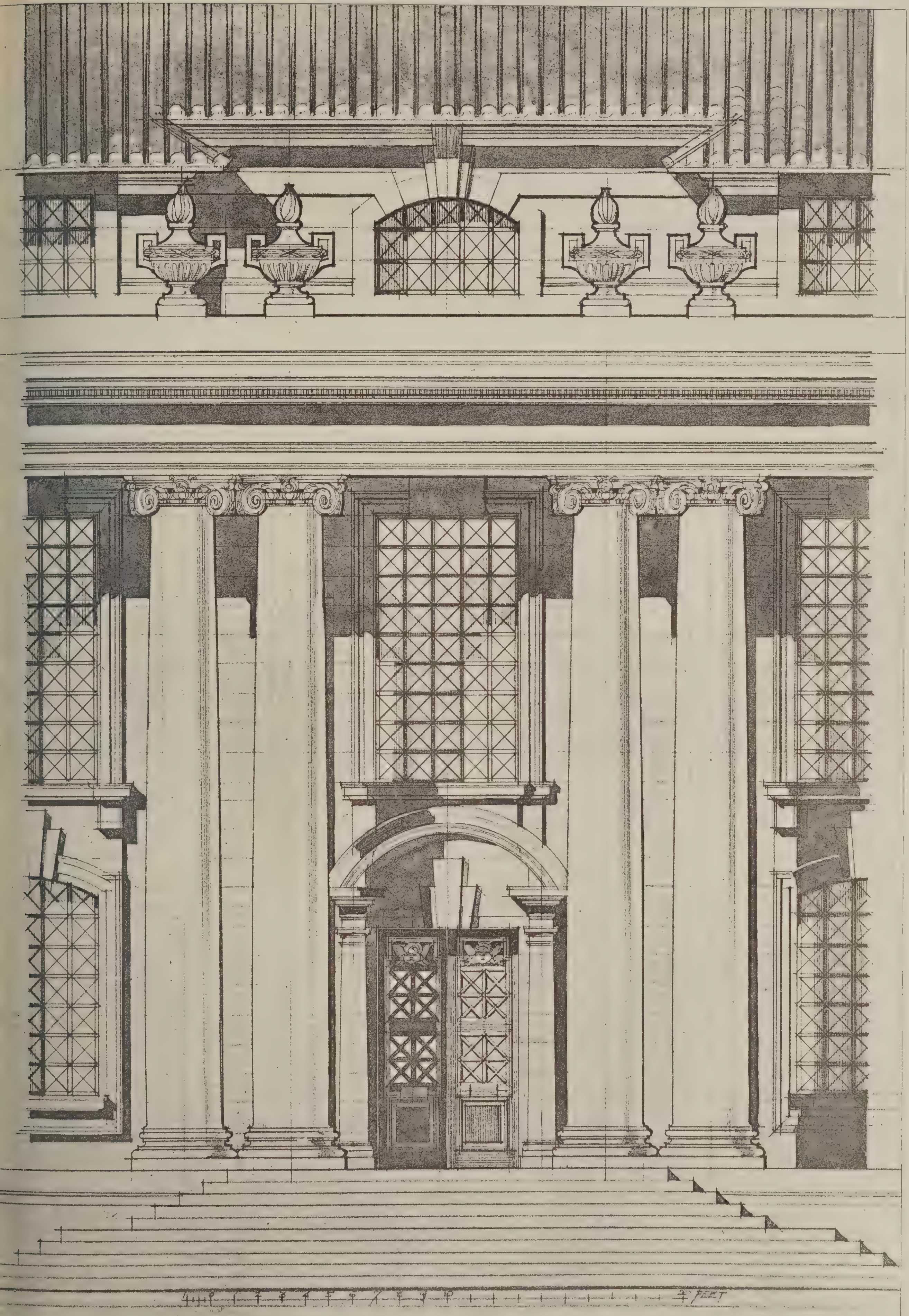
MARYLEBONE MUNICIPAL BUILDINGS: DESIGN PLACED THIRD.

By Messrs. NORTH & ROBIN.



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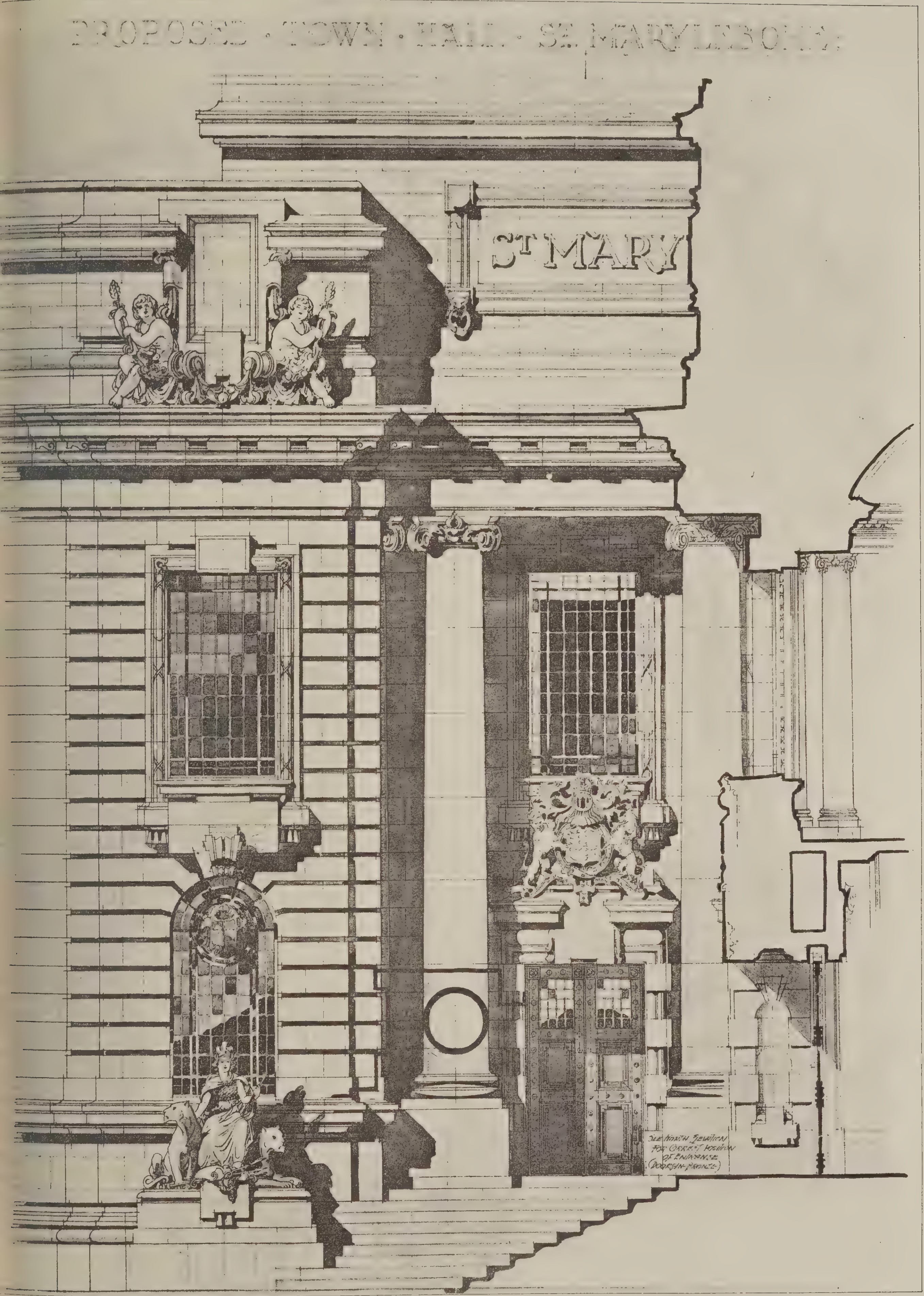
MARYLEBONE MUNICIPAL BUILDINGS: DESIGN PLACED FOURTH.

By Messrs. WARWICK & HALL.


PROPOSED · TOWN · HALL · ST MARYLEBONE
ST MARY
SEE NORTH ELEVATION FOR CORRECT POSITION OF ENTRANCE (DOORS IN BRONZE)

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MARYLEBONE MUNICIPAL BUILDINGS: DESIGN PLACED SECOND.

By Messrs. THOMAS WALLIS & J. K. BOWDEN.

The Architect.

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FORTHCOMING EVENTS.

Wednesday, January 3.

Cardiff, South Wales, and Monmouthshire Architectural Society : Paper on "Holidays in Normandy," by Mr. J. H. Phillips.

Monday, January 8.

Royal Institute of British Architects : Business Meeting and Special General Meeting at 8 P.M.

Liverpool Architectural Society : Paper on "Museums and Art Galleries," by Mr. Edwin T. Hall, at 6 P.M.

Tuesday, January 9.

Nottingham Architectural Society : Exhibition and Criticism of Designs, "A Detail of a Facade for Business Premises," at 8 P.M.

Wednesday, January 10.

Northern Architectural Association : Paper by Mr. T. M. Claque, at 7.30 P.M.

Manchester Society of Architects : Paper on "Construction and Design," by Sir Charles Nicholson, at 6.30 P.M.

HYDROFUGE-CASTOR.

THE EDITOR'S CANDID OPINION.

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WHEN Hydrofuge-Castor was first brought to my notice as a waterproofing material for concrete and plaster the claims made on its behalf appeared to me quite extravagant unless the material is unique in its superiority to other waterproofing substances for cement. The principal claims made for Hydrofuge-Castor are that, in addition to being absolutely waterproof, it does not affect the strength, setting, hardening, or colour of concrete and plastering. These claims cannot be substantiated by any other material for the same purpose with which I am acquainted, and I have given some considerable study to the subject.

It therefore seemed to me that in place of the ordinary newspaper notice based upon, and often a mere transcript of *ex parte* statements by vendors, it would be only fair to readers of *The Architect* to give the results of a series of real tests of the substantiality of the claims made for Hydrofuge-Castor.

In order that the tests applied might be in consonance with the usual conditions in practical work, the Portland cement and sand were obtained from the ordinary stock of a London suburban builder, and were thus representative of material in everyday use. The cement had been supplied by a merchant to the builder as "best English Portland cement" and as complying with the requirements of the British Standard Specification; but the maker's name was unknown to the builder. It had been in stock some time, and my tests showed that it was a slow-setting cement, with a tensile strength of 470 lb. on a seven-day briquette, and expansion, by Le Chatellier's test, of 2 m.m. The sand was a rather fine pit sand of moderate quality.

To test the effect of Hydrofuge-Castor on the strength of Portland cement I made several batches of briquettes, some with neat cement and some with cement and sand, taking as much care as possible to eliminate the effect of personal equation. In each batch the cement or cement and sand were mixed for the whole together and half of it filled into the moulds without Castor, which was then at once added to the other half and filled into moulds. The Castor was used in the proportion of 5 per cent. by weight of the dry cement. The cement and sand briquettes were composed of one part by weight of cement to three parts of sand. As many waterproofing substances decrease the strength of cement, some permanently and some temporarily, the batches of briquettes were kept for varying periods before breaking. The results showed that the Hydrofuge-Castor in no case diminished the strength of the cement, either in the neat or the sand test. Indeed, the average breaking stress of the briquettes with Hydrofuge-Castor was slightly higher than that of those without. I am not, however, at present prepared to state that the material increases the strength of the cement, but I am confident that it does not decrease it.

Most cement waterproofing substances slow the setting action of cement, some to a considerable extent. Under the standard test I found that the setting time of the cement I used was increased 10 per cent. by the addition of 5 per cent. of Castor. This is quite moderate and not serious. To ascertain if Hydrofuge-Castor affected the soundness of the cement I used both the boiling test and Le Chatellier's test and found that the material had no effect on the sound cement used.

Hydrofuge-Castor is supplied as a black bituminous fluid of treacly consistency, and it might, therefore, be expected to affect the colour of cement. In the neat briquettes with 5 per cent. Castor there is a distinct darkening, but in the sand briquettes, one to three, the difference of colour is only just perceptible in dry briquettes, side by side, and, seen apart, it is not possible to tell from the colour whether a briquette contains Castor or not, so that the claim is fairly justified that it does not affect the colour of concrete or plastering.

It is stated that Hydrofuge-Castor is non-inflammable. To test this I first dropped some into a fire, when it blazed up with considerable fizzling. I then tried to ignite some on a palette knife, with a match. This flamed up, followed by a fizzling which extinguished the flame. It appears, therefore, that the material contains inflammable matter, but will not continue flaming without adventitious assistance. To ascertain the effect of fire when the Castor is used with cement, I placed hardened pats of neat cement and of cement with 5 per cent. Castor in the fire so as to partially heat them to redness. No difference of effect was seen from the heating, and both were then plunged into cold water, when a similar crack was developed in each where the redness faded away. We may take it, therefore, that Hydrofuge-Castor has no injurious effect on the fire-resistance of cement.

I now come to the most important question of all, the waterproofing qualities of Hydrofuge-Castor. The material is, as already stated, a fluid of treacly consistency and is added to the cement and sand after these have been mixed with water. It is, therefore, less easy of

ST. MARIA IN COSMEDIN, ROME.

incorporation than those substances which are soluble in water, and as I was restricted to hand-mixing in my experiments, I anticipated some difficulty in proper incorporation. My briquettes of neat cement and Castor, when broken, showed distinctly marked striation, but those with sand showed more even, though not perfect, distribution.

As a sufficient test I considered that if I made a tank or trough in accordance with the directions given for works in contact with water, but not subject to pressure, and found it watertight, I might be satisfied with the waterproofing qualities of the material. For such works the directions are that 100 lb. cement, 200 lb. sand, and 5 lb. Castor are to be applied in three coats, each being not less than one-quarter inch. I mixed the ingredients in these proportions and made a tank with sides and bottom intended to be three-quarters of an inch thick, but owing to a slight inaccuracy in filling the core of the mould one side was only five-eighths of an inch thick. The tank was dried in air and when six days old filled with water. When examined ten hours after filling, the sides and bottom showed penetration of damp. Before condemning the efficiency of the Castor, I realised that the failure of my tank might be due to imperfect incorporation or to non-compliance with the direction to make up the thickness in three coats.

It is evident that if we fashion a considerable mass at one operation, as for the sake of convenience I filled in the three-quarter inch space in my mould, an efficient waterproofing material may be expected to lock up the internal moisture and delay the hardening and drying of the cement, and we have already seen that one effect of Hydrofuge-Castor is to render the setting of cement slower under the standard test. I therefore put my tank on one side till it had dried for fifteen days and then filled it again with water, when it remained without any sign of damp-penetration for forty-eight hours at the time of writing, even through the side that is only five-eighths of an inch thick.

To compensate for a possible imperfect incorporation I made a second and similar tank with twice the amount, or 10 per cent. Castor. This was dried in air for seven days and then immersed in water to within half an inch of the top and the interior remained free from percolation for forty-eight hours. I am therefore satisfied that cement and sand plastering with Hydrofuge-Castor can be made watertight.

It is probable, from the bituminous composition of Hydrofuge-Castor, that the impermeability of cement plastering or concrete waterproofed with this material is likely to be more permanent than when substances soluble in water are used, except when these by chemical reaction form insoluble compounds within the pores of the plaster or mortar.

As the result of my experiments, which I have endeavoured to carry out as fairly as possible, I have come to the conclusion that Hydrofuge-Castor is a highly valuable and efficient material for the waterproofing of concrete and cement plastering.

Frederic R. Farrow.

EARLY ROMAN CHURCHES.

(Continued from last week.)

THE group of churches which were founded between the recognition and adoption of Christianity by Constantine in 324, and the transfer of the seat of government to Constantinople in 330, are the following:—The Lateran basilica, St. Paul's-without-the-Walls, St. Peter's, St. Agnes-without-the-Walls, St. Lawrence-without-the-Walls, and the Sessorian basilica afterwards known as St. Croce in Gerusalemme.

All these were built on the outskirts of the town or outside the walls, and above still earlier catacombs in which the bodies of the saints and martyrs had been interred. They were some of them on a large scale, and were hastily constructed in a manner far inferior to the buildings of Imperial Pagan Rome, and comparatively early began to fall into

ST. AGNES-WITHOUT-THE-WALLS, ROME.

decay. In 410 the city was sacked by the Goths, and has suffered again and again from war and tumult, with the result that while all these early foundations are still in existence the present buildings contain comparatively little work belonging to the first structures; but in their present form they do in some cases preserve fairly closely the general form and appearance of the original structure, while in others they have been so altered as to give no indication of the form of the original church.

The first of these churches to be consecrated was that of the Lateran in the year 324. This building was on the site of part of the palace of the Laterani, which the emperor had given to Pope Sylvester in the previous year. This palace included a secular basilica, which was transformed or rebuilt as a Christian church. But the form and arrangement of this earliest church are mainly conjectural; it was frequently altered and enlarged, and early in the tenth century was rebuilt, though at this time probably the ancient form and proportions were retained; but in the seventeenth century the whole building was rebuilt by Borromini excepting the transept and the apse; and the apse itself was taken down and reconstructed less than fifty years ago. The church has always retained its position as the premier church in Christendom, and the adjoining palace was the residence of the popes until Rome was temporarily abandoned as the Papal city in 1309.

St. Peter's was the greatest of these early basilicas, and, like the Lateran basilica, it has been swept away to allow of a rebuilding, which was commenced in 1506, when the western half was put in hand, and this took a hundred years to complete. The eastern portion was taken down in 1606, and the eastern area completed in nine years. But in the case of this church, the original form and disposition of the building was in the main preserved up till the time of its destruction, in spite of repairs and alterations. Drawings of it showing not merely the plan but the general arrangements and treatment of the interior still exist.

A widely accepted tradition places the martyrdom of St. Peter by crucifixion on the spina of the great circus of Nero on the south side of the ancient Via Cornelia, and his tomb was on the opposite side of the road about due north of the western meta of the circus.

Here Constantine erected his great basilica, the centre of the apse being approximately above the tomb, while the southern wall and the two rows of columns of the double aisle south of the nave were erected on the foundations that had supported the northern range of seats of the circus. The northern side of the basilica was built on new foundations. There was nothing to the east to restrict the size of the basilica, and it was approached through a great atrium stretching across the width of the church. This was entered by three gates on the eastern side; the principal one had doors of bronze inlaid with silver. The centre of the court was occupied by a fountain erected about the end of the fifth century; it consisted of a marble basin surmounted by a canopy supported by eight red porphyry columns carrying an entablature and a dome or vault of gilt bronze. From the western wall of the court, which was the broadest and formed a spacious narthex, the church was entered by seven doors, three leading into the east end of the nave and one into each of the four aisles.

The great church thus erected had five aisles, of which as usual the central aisle or nave was much the widest, measuring 75 feet by 285 feet; the other aisles were placed symmetrically two on the north and two on the south; they were of the same length, and were separated from the nave by two rows of antique marble columns, with twenty-three columns in each row. The outer aisle of each side was at a later date, about the end of the eighth century, covered by a groined vault.

In this church the apse, which as usual with early foundations, is at the west end, did not open directly out of the nave, but another broad hall or transept (little less in dimensions than the nave itself) was placed at right angles to it, and projected north and south beyond the outermost aisle; the northern end was at a later date occupied by a baptistery. This transept was entered from the nave by a great semicircular arch, which was occupied by a mosaic in which Constantine, bearing as offering a model of the basilica, is presented by St. Peter to Christ. It was also entered from the aisle by smaller arches. The apse opened out of the west wall of the transept and was somewhat smaller in diameter than the arch of the nave; it was covered by a semi-dome, and both dome and walls were enriched with mosaic.

ST. APOLLINARE NUOVO, RAVENNA.

The columns in this building were collected from various sources, and nearly all the ancient quarries were represented in the collection. The capitals and bases were as diverse as the shafts; the entablature also differed in successive intercolumniations, and many of the blocks which formed it were inscribed with the names of former Roman emperors. Above the entablature was a great expanse of plain wall, which was decorated with a double row of panels, and above these occurred the large range of semicircular headed clerestory windows. The nave was covered with immense trusses of timber, which were exposed to view; one of the tie beams measured in 1606 was 77 feet long and 3 feet deep. At the time of the repairs carried out by Pope Benedict XII., before the middle of the fourteenth century, it is stated that some of the original timber beams marked with the name of Constantine were to be seen.

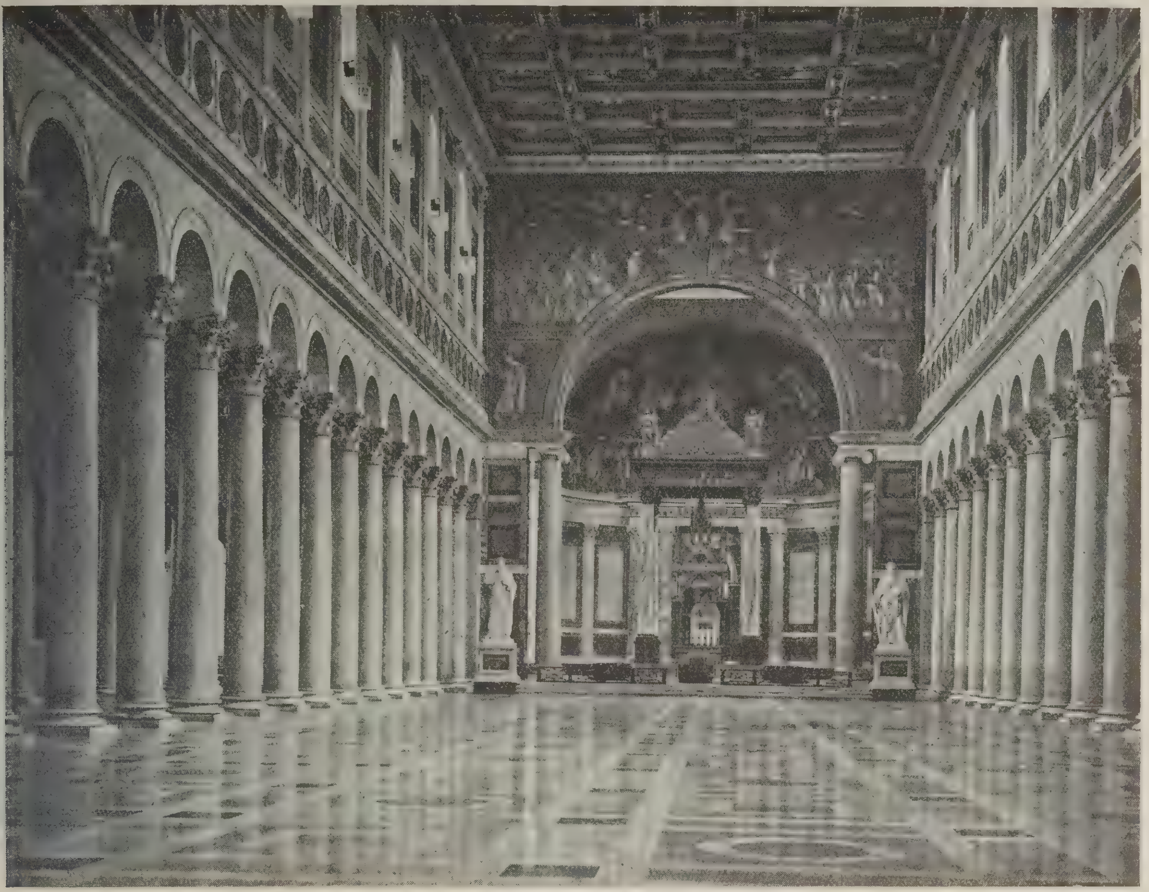
The roof was covered externally with tiles. At the time of its destruction these were of three kinds of material, viz., bronze, earthenware and lead, but all of these were subsequent to the original foundation. The brick tiles bore the seal of Theodore; the bronze tiles were those used for the great Temple of Venus and Rome, and were transferred to the basilica in the seventh century, and the leadwork bore the names of various popes subsequent to the first quarter of the fourteenth century.

The immense area covered by this early church is remarkable; it exceeded 73,000 feet, and though greatly surpassed by the present church, for the erection of which it was deliberately pulled down, there are few mediæval or Renaissance churches that cover a more extensive area. In spite of the variety found in the materials of construction it must not be forgotten that each column was in itself a specimen of some rich marble, for which the ancient quarries of the world had been ransacked in the preceding centuries for the beautifying of the buildings of Imperial Rome, and the effect of the interior must have been one of the utmost richness of splendour, which was enhanced as time went on by the gifts and works of successive popes.

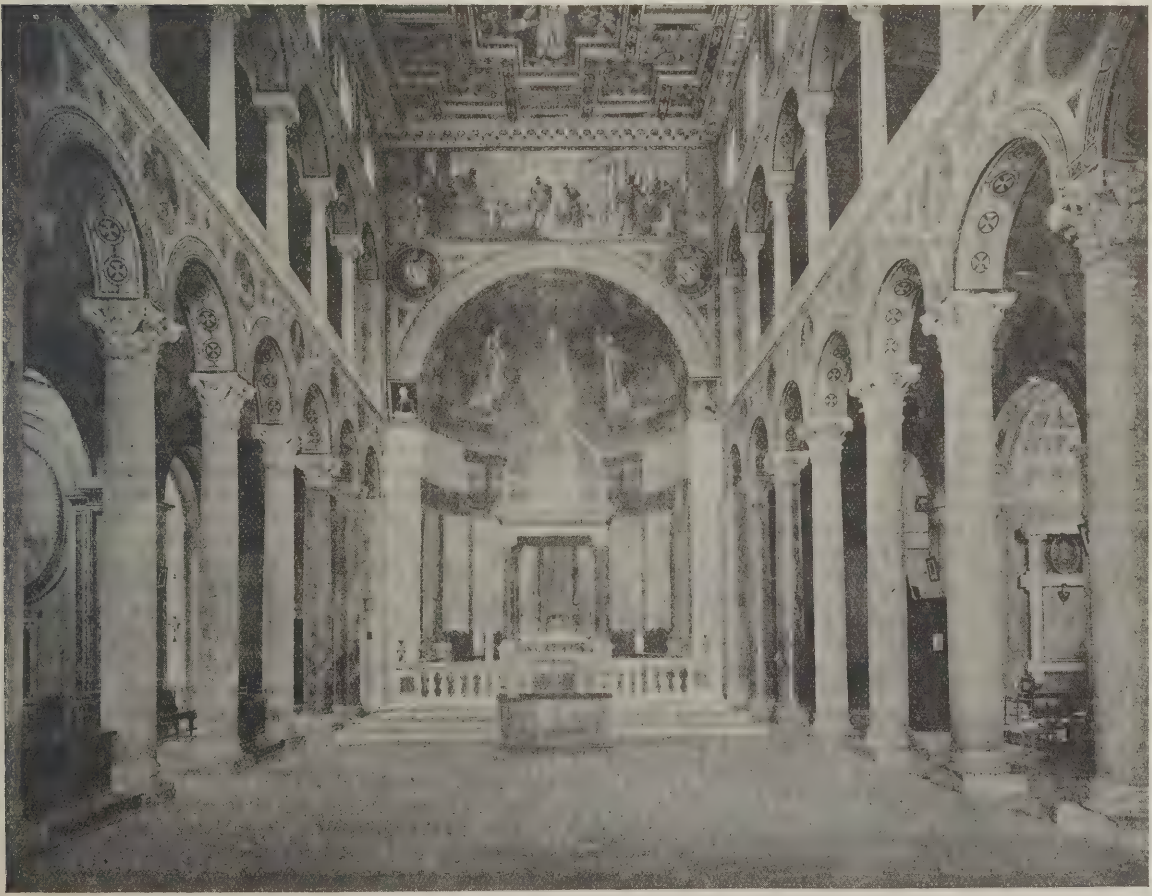
The basilica of St. Paul-without-the-Walls, founded by Constantine in the same year as St. Peter's, was erected on a much smaller scale. This was due to the fact that the tomb of St. Paul lay to the west of the Via Ostia, and that there was not room between it and the road for anything more than quite a small church. Remains of this early foundation still exist below the ground level and were investigated during the rebuilding of last century, and the plan has been ascertained. This church resembled in plan that of St. Agnes, but was considerably smaller. The atrium extended right up to the Via Ostia, and from it three doors led into the nave and two aisles; in this example the colonnade separating the nave and the aisles was returned across the entrance, forming an inner narthex—a feature that occurs also in the other two early churches of St. Agnes and St. Lawrence. At the west end the apse was placed above the tomb, and each aisle is terminated by a small chapel entered through an opening in the west wall in line with the great arch of the apse.

Before the end of the century in which it was founded it was decided to build a more splendid church in honour of the saint, and this was only possible by a reversal of the system of orientation; but this was done and the basilica extended towards the Tiber, with a western facade and entrance, and an eastern apse which was a reversal of the position then customary. The new basilica was constructed on a plan and scale little if at all inferior to that of St. Peter's, and outlived the older church, lasting until the disastrous fire of 1823. The present church has been rebuilt on the same scale and on the same site, and with even greater splendour of material.

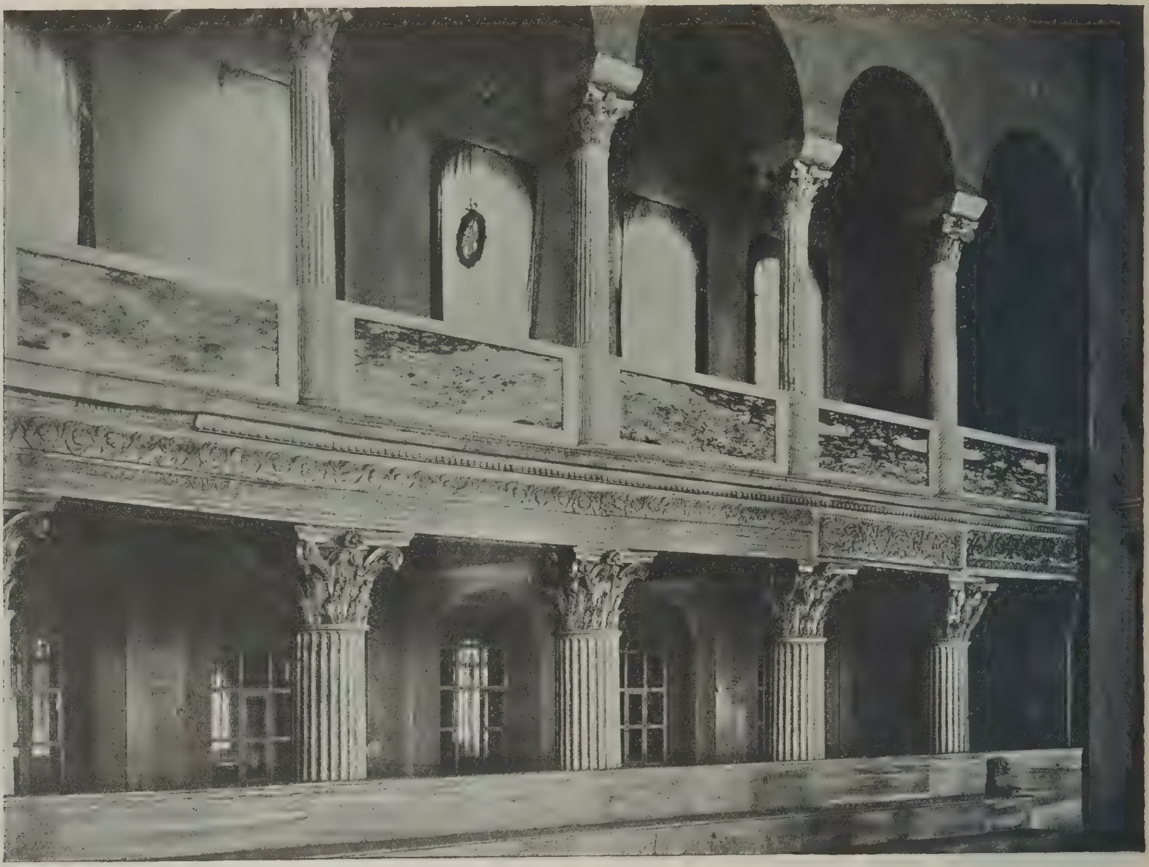
The great basilica had five aisles; the columns were of the Corinthian order, and each row contained twenty columns; of those carrying the arcade next the nave twenty-four were antique and of veined marble with extremely beautiful capitals, the remaining columns showing much the same variety as those of St. Peter's. In place of the entablature referred to in St. Peter's three columns carry an arcade, but the spacing of the columns differs but little from those of St. Peter's; above the arcade was a lofty plain wall, necessitated here as well as at St. Peter's by the height of the aisle roof which spanned the double aisles with a single



ST. PAUL-WITHOUT-THE-WALLS, ROME.



ST. AGNES-WITHOUT-THE-WALLS, ROME



ST. LAWRENCE-WITHOUT-THE-WALLS, ROME.

slope. This surface was broken up by pilasters of small projection and flat horizontal bands, formed in marble, into a series of panels arranged in three rows. The lowest of these contained medallions of the popes, the upper ones pictures. The clerestory windows had semicircular heads, and were filled in with thin slabs of marble, perforated for the admission of light.

The nave is said to have had a panelled wood ceiling, decorated with plates of gold; at the time of the fire no such ceiling existed, the roof being open as at St. Peter's. The transept was as wide as the nave, being about 73 feet, but projected slightly only beyond the aisle on each side; at a date subsequent to its erection, the transept was divided longitudinally by a continuous arcade. The apse had the same diameter as the breadth of the nave, and is the only portion of the structure that survived the fire; the mosaics with which it is lined were severely damaged and have been to a great extent removed. The tomb of the saint over which the altar was placed was not in this case under the apse but in the transept and just behind the great arch which spans the nave, and which is of a considerably smaller span.

The modern church which was reconstructed on the lines of the old one gives a fine impression of the spaciousness and richness of the entire building.

The church originally had a large atrium, which was destroyed by earthquake, and was connected with the Porta Ostiensis by a splendid colonnade nearly a mile and a quarter in length, all trace of which has disappeared.

Both the churches of St. Peter and St. Paul in time collected round them groups of important buildings. Being without the walls they were subject to attacks from marauders, and suffered especially from the Saracens. At a much later date enclosing walls and fortifications were erected beyond them.

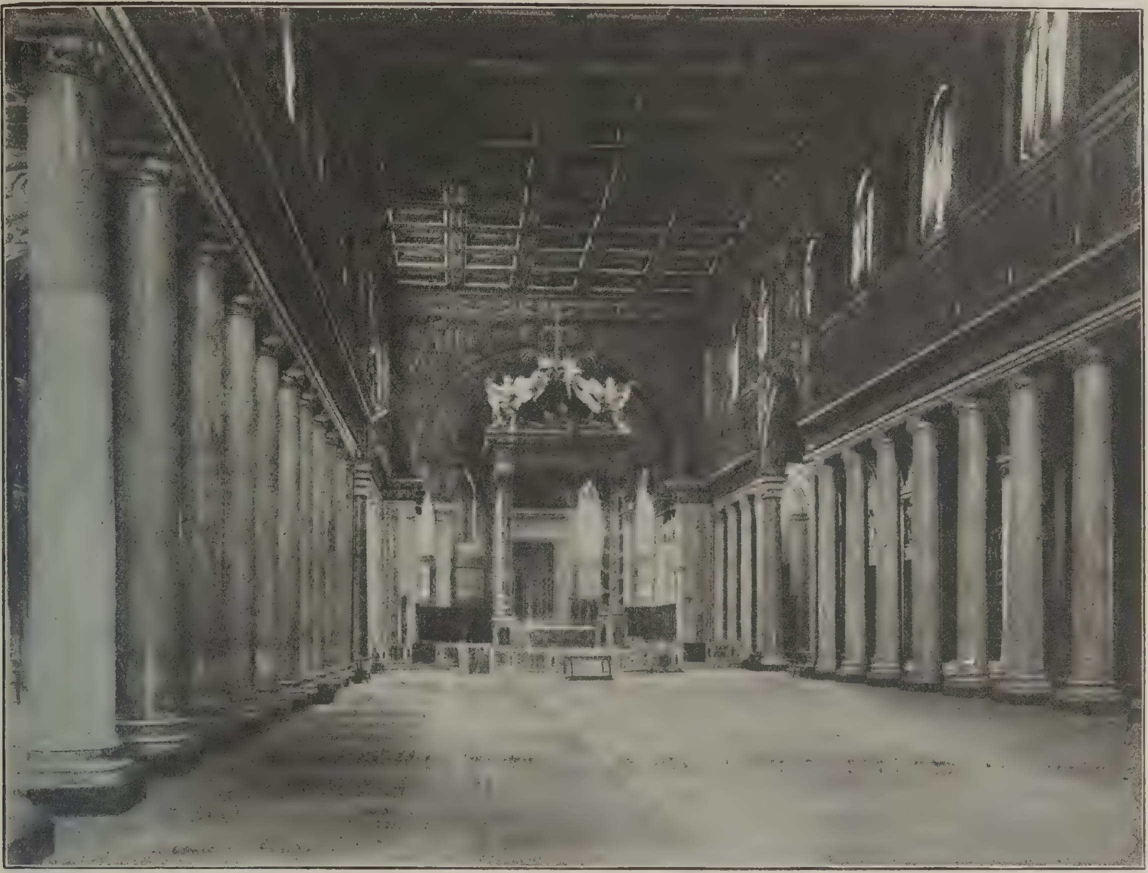
The three great churches that have been briefly described were all of them planned with five aisles and covered enormous areas; the great defect in the internal treatment of these buildings was the immense height of the walls enclosing the central space, which seemed to overload the columns which carried them, in spite of the closeness with which they were spaced. This was most noticeable in St. Peter's, where the height of the columns was less than one-third the height of the building. Though at St. Paul's the proportionate height of the columns themselves was not very different, in this case an arcade rested on them and considerably increased the height of the openings of the lowest storey.

The remaining churches of Constantine's foundation are all smaller. One of these, St. Agnes, has remained to a great extent in its original form. St. Lawrence has been greatly modified, and the Sessorian basilica has been rebuilt on different lines.

The church of St. Agnes, built above the extensive catacombs of St. Agnes, has features of special interest. The plan is very similar to that of the early church of St. Paul, already described, having three aisles and an internal narthex, and, though slightly larger, it is of quite moderate dimensions, measuring 83 feet in length internally, excluding the apse, and 53 feet in width, of which 33 feet is occupied by the nave; there is no transept. It is one of the churches in which the floor is formed at a considerable depth below the ground level, in this case some 25 feet, and it is still reached by a broad flight of steps on the north side.

Internally the most striking difference from the examples we have hitherto considered is the treatment of the upper part of the nave walls. The nave is separated from the aisle by a range of Corinthian or Composite columns carrying an arcade, but above this level, in place of the plain wall, there is here an upper arcade, also of Corinthian columns, but of less diameter and height. They are disposed, however, exactly above the lower columns, with the result that an entirely different proportion is given to the arcade. Like the lower arcade, they are returned across the entrance end, so that the gallery extends over the narthex. In the lower order the materials of the columns are very diversified, and a few only are fluted; the upper shafts are fluted, and between the cap and the springing of the arcade a square, rather shallow dosseret is inserted to receive the impost of the upper arches. Between these shafts a low balustrade occurs, and this upper gallery was allotted to the women of the congregation. The clerestory occurs, a usual, above the level of the aisle roof. Both the aisles and the galleries above are now covered with groined vaults which, however, are not original. Side chapels have been added to the aisles at a much later date.

While it is probable that the general arrangement and features of this church do not essentially differ from it original character, it is quite uncertain to what extent th actual structure can be attributed to the time of Constantine



ST. MARIA MAGGIORE, ROME.

Even before the eighth century it had undergone more than one restoration, and in the siege of Rome by the Lombards it suffered so severely as to necessitate a practical rebuilding. The internal decorative treatment at the present time is due to restorations of last century, excepting only the apse, the vault of which still retains the mosaics, while the wall below it is still faced with an early marble lining divided into panels by bands of darker marble.

The church of St. Lawrence-without-the-Walls in its present state presents a very unusual plan for a basilican church. It has the usual arrangement of the nave, but in place of the apse there is a long chancel raised high above the floor of the nave.

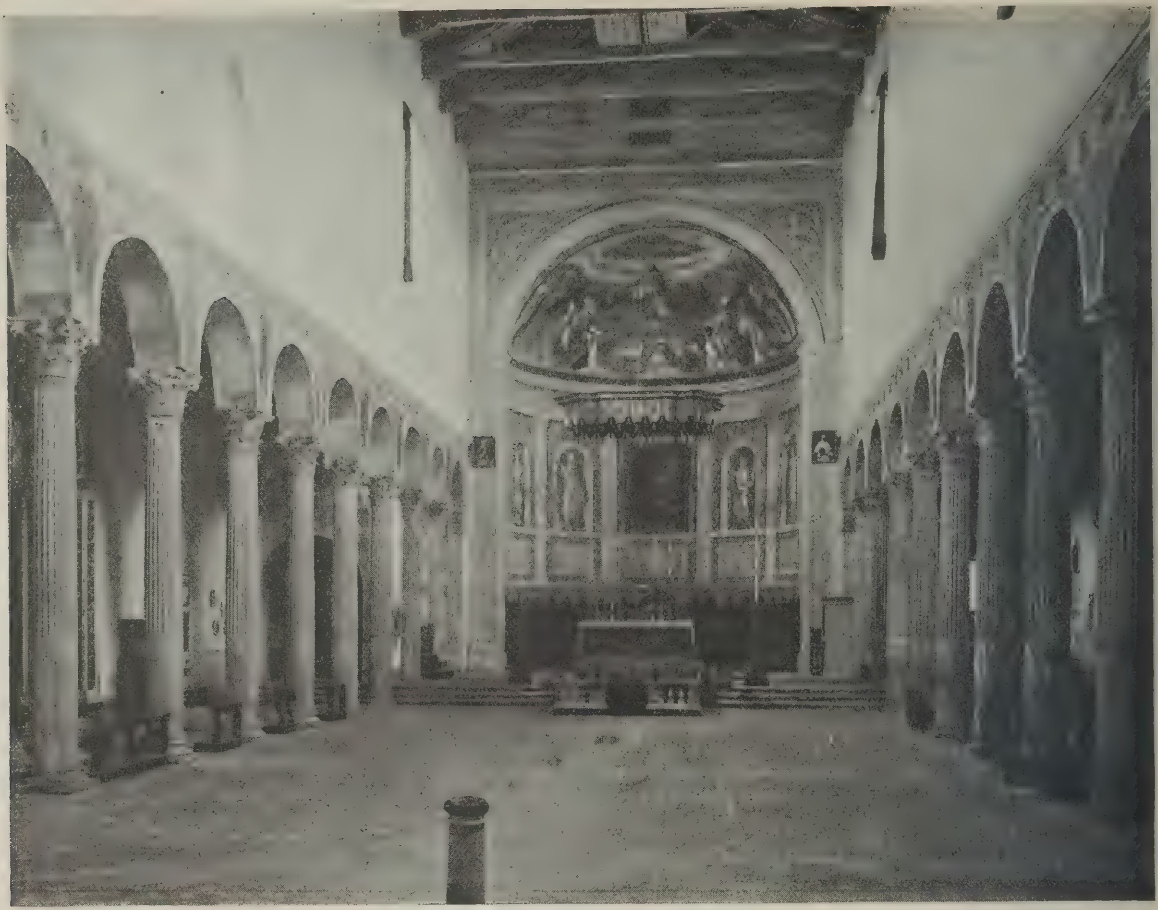
The chancel occupies the site of the Constantinian church, which was originally almost identical in arrangement with St. Paul and St. Agnes, but larger than either. It had an inner eastern narthex and western apse. About 100 years later a second basilica was built on nearly the same axial line, but at a higher level and with the reversed orientation that was then customary, so that the two apses were placed back to back. Near the close of the sixth century Constantine's church was rebuilt, and it is conjectured that the upper gallery, which is a feature of this church as of the church of St. Agnes, may date from this time. Early in the eighth century the abbot, who was afterwards Pope Hadrian I., restored the later church, and the union of the two buildings is attributed to this period, though some authorities put it as late as the thirteenth century when Honorius III. built the large western narthex.

In uniting the two buildings both apses disappeared. The arch of triumph belonging to the older church, with its mosaics, was preserved and the floor of the nave of this church was raised, a crypt or confessio was formed beneath it, and flights of steps up to the new level and down to the old level, which was adhered to in the aisles, were constructed. The raised floor was at a height of about 4 feet above that of the later church, and more than half-way up the height of the columns of the Constantinian church, and the area was enclosed by a screen wall of marble, enriched with panels of porphyry, within which was a marble seat extending along the sides, and at the back a mosaic screen with the bishop's throne in the centre. The columns of the earlier church are almost hidden, but the capitals appear above the screen, and the entablature is a good example of the manner in which fragments from different sources were combined. Above the entablature at the gallery level is an arcade very similar to that at the church of St. Agnes, and above this again a low clerestory.

The last of the basilicas attributed to Constantine is now known as St. Croce in Gerusalemme, and was formerly known as the Sessorian basilica. This church has suffered from a modern and complete rebuilding. But the form of the original church is known; the most noteworthy difference between it and the other plans already described consists in the treatment of the transept, which is narrow in width and does not project beyond the aisle on either side.

Time will not permit of very detailed examination of basilicas founded at a later date, but the type of building described continued to be employed for many centuries in Rome. As has been pointed out, the earliest basilicas were all subjected to repairs and rebuildings, and it is to a great extent the persistence of the type that justifies us in concluding that in such case the original disposition and treatment was adhered to. A study of subsequent buildings displays, however, no advance in design or in construction or in decorative treatment, such as one usually expects to find in the history of any architectural epoch. The very reverse indeed is the case. The earliest buildings are on a larger scale and decorated with greater skill, and generally reach a higher level than the later work, which suffered from the decay of the Roman power following on the removal of the seat of government and the terrible series of disasters that affected Italy, and little signs of progress are manifest till the infusion of new ideas and systems of construction from without revitalised the art of architecture and the sister arts.

It will be well, however, to briefly consider a few of the later examples of this type of building, and among these one of the earliest and probably the most splendid of all the three-aisled basilicas is that known as St. Maria Maggiore. It was built 352-56 while Liberius was pope. The mosaics were executed at this time, and still include some original work. Early in the succeeding century Pope Sixtus III. altered the church, inserting a narrow transept, and at a



ST. SABINA, ROME.

much later date the splendid row of Ionic columns which carry the entablature were broken by an arch on either side. These columns are all of one type, and present the finest range in any basilican church. The frieze of the entablature is decorated in mosaic, and above it occur the mosaic panels from the Old Testament.

St. Sabina has certain features of interest. It is an example of a basilica built on the site of an ancient temple—that of Liberty on the Aventine—and it was erected early in the fifth century. It has, as usual, been repeatedly restored, but it has not been given the appearance of a late Renaissance church by the introduction of a heavy flat ceiling and other decorative work, additions which have so greatly altered the interiors of many basilicas. The raised floor of the apse is in this example brought forward so as to include three bays of the nave and aisles, and extends right across the church. The decoration of the spandrils between and above the arches of the arcade is unusual, and consists of an inlay of coloured marble, the type of work that in Roman Imperial times is known as opus sectile. Above each column is a panel in which occurs a geometrical pattern executed in green marble on a red porphyry ground, while the spandril on either side is filled in with an imitation of masonry executed in white marble with dark joints. The whole arcade is surmounted by a continuous band or frieze of white marble inlaid with figures executed in various coloured marbles.

(To be concluded.)

BRITISH FIRE PREVENTION COMMITTEE.

THE testing operations of the British Fire Prevention Committee of this week comprised two high-temperature tests, *i.e.*, with a thin metal fire-resisting partition and with two tin metal fire-resisting doors, the former for the one and a half hour standard fire test, and the latter for the two hour standard fire test, both followed by the application of water from a steam fire engine.

Considerable interest was evinced in these tests, the object under investigation being of a somewhat novel character.

There was a very large attendance of members and subscribers, including representatives from the Home Office, Admiralty, H.M. Office of Works, London County Council, and other public bodies, and the Americal Consulate was represented by its Vice-Consul, as the object under test was of American origin.

The members and subscribers were received by Mr. Edwin O. Sachs, Chairman, and Mr. Horace Folker, Honorary Treasurer, and the testing operations were conducted by a Sub-Committee, with Mr. Ellis Marsland, district surveyor, as directing member, which comprised Messrs. J. Herbert Dyer, J. W. Brooker, C. T. Cuss, and Bertram Chatterton.

THE British Fire Prevention Committee conducted an extensive series of fire tests on December 6 with flannelette of fine finish with a view of ascertaining the precise inflammability of these materials, which are sometimes incorrectly considered to afford safety from fire.

The tests were applied for by the National League for Physical Education and Improvement, and were conducted under the Fire Prevention Committee's usual procedure, Mr. Edwin O. Sachs, F.R.S.Ed. (Chairman), and Mr. Horace Folker, F.A.I. (Hon. Treasurer), receiving the visitors on behalf of the committee, and the latter included representatives from the Home Office and other public departments, as also Dr. Chapple, M.P., Mr. Chas. Duncan, M.P., Mr. Harry Nuttall, M.P., Mr. George R. Sims, and also Mr. Andrew Clark, F.R.C.S., Dr. Lyster, and several members of the medical profession.

The usual details and illustrated report will be shortly issued by the committee.

ILLUSTRATIONS.

MARYLEBONE MUNICIPAL BUILDINGS.

WE illustrate this week the design submitted in the recent competition by Messrs. Edwin T. Hall & E. Stanley Hall, which was one of those commended by the Assessor.

PULPIT IN CHAPEL OF TRINITY HOUSE, NEWCASTLE-ON-TYNE.

THE drawing by "Alpha" contains its own description, and was awarded a prize in *The Architect* Students' Sketching and Measuring Club.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

An ordinary general meeting of the Royal Institute was held on Monday, the 18th inst., Mr. Leonard Stokes, President, in the chair.

Mr. E. Guy Dawber, Vice-President, in the absence of Mr. Henry T. Hare, Honorary Secretary, announced the decease of the following:—Mr. James Rawson Carroll, of Dublin, who was for twenty-two years a Fellow of the Institute, and resigned in 1908; and of Mr. George Gordon Hoskins, of Darlington, elected Associate in 1867 and Fellow in 1870, who would always be remembered by the very fine town hall he built at Middlesbrough. The death was also announced of the Institute's distinguished corresponding member Pierre Jérome Honoré Daumet, member of the Institute of France, at the age of eighty-six. He was the doyen of French architects. He was awarded the Grand Prix de Rome in 1855, and no fewer than nine of his pupils have received the same distinction. He was for some years engaged on the restorations of the Châteaux of Chantilly and St. Germain. One of his principal works was the Palais de Justice, Paris. In France M. Daumet was regarded as among the leading men of his profession, and held several positions of honour. In 1906 he attended the International Congress of Architects in London, and many of those then present would remember him for his personal charm and for the deep interest he took in the proceedings. In 1908 the Royal Institute had conferred the highest honour possible on M. Daumet by nominating him for the Royal Gold Medal.

The names of the following candidates nominated for membership were announced (1) as Fellows: Mr. Francis Winton Newman and Mr. Walter Tapper; (2) as Honorary Corresponding Member: M. Victor Alexandre Frederic Laloux; and (3) as Licentiates: forty-one candidates whose names were published in the Supplement to the Journal for October 21.

Mr. Leonard Stokes stated that there would be an alteration in the order of proceedings, as only two of the papers would be read that evening, the other two would be heard on some future occasion. The papers dealt with

The Newer Responsibilities of Architects.

I.—By Mr. W. Henry White, F.R.I.B.A.

The most beautiful design, said Mr. White, would only produce dissatisfaction if it resulted in financial loss and litigation through the fault of the architect, so it was the duty of the Institute to foster the three qualifications of a good architect, viz., that he should be a man of Art, a man of Science, and a man of Business. There were ever-increasing demands upon the architect's skill and business knowledge. The present keen competition had resulted in a great increase in litigation over building cases.

There was a very heated discussion some years ago as to whether architecture was a profession or an Art, and much time was wasted. What really matters to an architect is that his work shall be carried on with due and proper regard to the reason for which he is employed both as artist and man of business. The Practice Committee are constantly being set problems on all manner of professional points, very few of which would arise if the inquirers had been trained to understand and appreciate their responsibilities. Architects should be so educated as to be forearmed against the difficulties which beset them, and be taught to bring logically trained minds to bear upon all their work, so that their decisions may be received with confidence by clients, builders, and others. The R.I.B.A. examinations in professional practice were not sufficiently exhaustive.

Very important is the change in the methods of contractors, who increasingly tend to sub-let their work and to run their business from a counting-house. This system entails an enormous amount of extra work on the architect. This is further added to by specialist's work. Another detrimental influence is the "hurry scurry" of modern times —especially in connection with street architecture.

Does the policy of the Institute, asked Mr. White, in what amounts to withholding the architect's name from the public as far as possible, assist them to a knowledge that there are good, bad, and indifferent architects as shown by their works? In all probability a large majority of the public think the *builder* (whose name is so prominent) is responsible for the design. If the Institute wishes to foster in the public an interest in architecture let them insist upon the architect's name being indicated, and regulate how and what notices as to builders, &c., be shown. It is certain that most work is placed in the hands of architects by influence rather than by knowledge.

Changes from the drawings and specification take place in almost every contract, and herein lies the danger of the "lump sum" contract and the advisability of making the quantities a part of the contract. As regards the varying of materials or allowing a different brand from that specified to be used, great care must be exercised in doing this and advising the client thereon. The average specification that is brought before the Law Courts wants much revision to bring it up to the standard of modern requirements and limitations. Could not the Royal Institute of British Architects in the interest of its members suggest clauses as to the proper specifying of timber, a standard for concrete floors, asphalte, paint, &c.—clauses which could be accepted by the profession and which would prevent so much conflicting expert evidence as is now given in the average building "case"? Architects are now very much divided against themselves, and show a lack of *esprit de corps.*

The architect's position in relation to his client is a most invidious one as regards liability. The builder, after the usual twelve months' maintenance clause has expired, is freed from all further responsibility towards the client, but the architect remains liable up to the period allowed by the Statute of Limitations, *i.e.*, six years. This is too unjust a burden for architects to remain under. The architect should have a clear and definite understanding with his client on the subject of supervision, and the builder should remain responsible for any defective work the faults of which only develop after the ordinary period of maintenance has elapsed.

In conclusion, Mr. White summed up the following grounds on which actions may be brought:—

Variations from the contract and additions or extras ordered without the consent of the client.

The materials not of the particular kind specified.

The work upon being opened up found to be defective.

Water-pipes furred up in an undue space of time.

The contract not completed in time.

Goods ordered under provisional sums by the architect and not paid for by the contractor, although included in a certificate met by the client, who has had to pay twice over owing to the failure of the contractor.

The client declining to pay the architect's fees and the value and interpretation of the Royal Institute of British Architects' schedule of charges.

Payment disputed for work designed and not carried out.

The client claiming drawings from which his building was erected.

The architect's liability for "negligence" in such matters as "dry rot," insufficiency of work and materials, specifying one material and allowing another kind to be used without the client's consent.

Quantities forming part of the contract, or lump sum contract.

The arbitration clause.

Withholding or granting certificates from the client's and the builders' points of view.

The question of sub-contractors and the employment of specialists.

The client's responsibility for injury to workmen if the contractor is unable to pay and not covered by insurance.

II.—By Mr. Edward Greenop, A.R.I.B.A.

The architect, contended Mr. Greenop, has a claim to view his responsibilities from a different standpoint to that of the lawyer, giving a necessarily broader aspect than the training of the legal mind allows. Indeed, he holds an intermediate position between the lawyer and the "layman," while standing himself in a position of extreme vulnerability from the law's assaults.

Mr. Greenop then dealt with leading cases of quite recent date which were concerned with "Alleged Negligence," "The Architect as Arbitrator or Agent," "Agent or Principal," "The Ownership of Drawings," and "Fees."

The principal case under the first heading was Lanning *v.* Davey and Salter (1906). This was an action against architects for negligence. The client, a solicitor, after having paid upon several interim certificates issued by the architects, revoked their authority to further certify. The architects, however, continued to issue certificates. The client refused to honour them, and the builder sued upon them. The client alleged, as his defence to the builder's action, that there was bad work. The builder answered that upon this point the architect's certificate was final. Upon the case coming into Court the client's defence proved to be valueless, and he was compelled to settle the action in Court. He thereupon brought an action against the architects for the recovery of a sum of £600 damages and costs he alleged he had incurred in consequence of the architects having acted improperly in inducing him to enter into a building contract in which they had made themselves sole arbitrators against him, without his expressed or implied authority to do so. The architects contended that the building agreement was prepared in the client's interest, and put forward in the ordinary course of their duty as architects. Notwithstanding a strong direction by Mr. Justice Darling, pointing in the architects' favour, the special jury found against them to the extent of £750. The architects appealed. Mr. Justice Darling reported that in his opinion the verdict of the jury was wrong, The Court of Appeal were strongly in favour of the architects upon the merits of the case, and the Master of the Rolls said he would have liked to enter judgment for them at once, but that he did not think he could withdraw the case from a jury, and that consequently there must be a new trial. The case was thereupon retried before Mr. Justice Lawrence and a special jury, with the result that a verdict was given for the architects upon the question of negligence, and also upon their counter-claim for fees, a miserable £87 odd. The evil appears to lie in the rottenness of a system by which the law allows such cases to be tried by such an incompetent tribunal as a jury. Lanning *v.* Davey and Salter should go down as an unanswered denial of the boasted protection afforded by the laws of this country.

Other cases mentioned under this heading of "Alleged Negligence" were Findlay *v.* Roques and Cavell (1907), Keyser *v.* Trask & Sons and Webb (1907), Raikes *v.* Power and Power *v.* King (1910), Davis Lewis Trust and Levy *v.* Graham and Leicester Board of Guardians (1911).

In dealing with the position of "The Architect as Arbitrator or Agent," Mr. Greenop discussed at some length the case of Robins *v.* Goddard (1904), and C. R. Roberts & Co. *v.* Hickman & Co. (1911). The importance of the latter was, in his opinion, difficult to over-estimate, because the decision in the House of Lords is an entire reversal of Goddard *v.* Robins, and re-establishes architects, probably for all time, in the position they should undoubtedly occupy under a building contract—namely, that of arbitrator, immune, in the absence, of course, of fraud or misconduct, from attack by either client or builder.

The moral to be drawn from Crittall Manufacturing Co. *v.* L.C.C. was that architects should, before instructing builders to accept sub-contracts, obtain a written undertaking from the sub-contractor that he will in no event look to the client for payment.

The law as to the ownership of drawings appears to be established by two cases—Ebdy *v.* Gowan and Gibbon *v.* Pease. The former is an old case in which the building was not carried out, the architect being paid the two and a-half per cent., and claiming to retain the drawings. The Court decided against him.

In the second case, Gibbon *v.* Pease, the previous case was followed, both in the Divisional Court and the Court of Appeal. In the lower Court Mr. Justice Ridley refused to hear evidence as to custom to the contrary. The Court of Appeal supported the Judge below, adding that, even if he had admitted evidence as to custom, it would not have availed, as a custom must be reasonable, and such a custom would be unreasonable and bad. The opinion has been expressed in the profession that the case ought to have been carried up to the Lords. As it stands the retention of the drawings by the architect by special agreement with the client seems the only resource available to us.

In discussing "Fees," Mr. Greenop mentioned two cases. The first was that of Tree *v.* Mitchell (1909). It involved the question of abandoned work, and also of the builder's estimate exceeding the sum originally mentioned by the client as his limit of expenditure. There was also a complaint that the drawings were not prepared by the date agreed, as the result of which the client had to change his arrangements. The original expenditure mentioned by the client was £2,000. The architect advised it was quite inadequate, and suggested £3,000, but was told to proceed. The lowest tender was £5,400, due to the addition of oak panelling, parquet floors, and other luxuries. The client admitted the advice as to £3,000, but said he was not informed the luxuries would increase that amount.

Mr. Justice Walton, in summing up, said he was satisfied that the luxuries were added with the client's knowledge, but that no definite statement was made by the architect about them. He also pointed to the unsatisfactory feature that there were no definite terms drawn up upon which the architect was to act. The architect had claimed upon the Institute scale, namely, three per cent., which amounted to £347, the work being abandoned. The Judge admitted the sum so arrived at was fair "if the scale was adopted," but gave the architect £200 only, as the case was, to use his expression, "a peculiar one."

If there is a moral for architects, said Mr. Greenop, it is this. That the client should be regularly kept informed in writing by the architect of his position from time to time as the various stages of the matter are reached, so that in the event of dispute later he may be able to meet complaints with written evidence. Also that the sooner architects get a schedule of charges which they can safely put into a client's hands as the basis of their contract when accepting a commission the better for them.

The second case was that of Brown *v.* Meckel & Co., tried before Mr. Muir Mackenzie, the Official Referee, in 1909. The details of the case were of an ordinary character, but the learned Referee, in giving judgment, elected to make some observations upon the Institute scale. He said that it had been repeatedly pointed out by the Judges that there was no implied obligation on a client to pay upon the Institute scale, but that an express agreement must be obtained, and that the scale, therefore, could not be considered, except so far as the fact that it was a scale, and had a certain amount of sanction attached to it by the weight of the repute of the persons who prescribed it.

Mr. A. M. Brice (barrister-at-law), in opening the discussion, said that some of the legal points had been raised quite fairly, and some he hoped to dispose of. The relationship of the architect in a contract was twofold. First and foremost, he was the agent of the building owner mainly for the exercise of ministerial acts—that was to say, amongst other things, the giving of interim certificates. Many of the difficulties alluded to arose from a confusion between "interim" or "progress" certificates and conclusive certificates. It was not until the architect gave the latter that he can act as arbitrator or quasi-arbitrator in a judicial capacity. As an employé the architect could at any time be dismissed by the building owner; and if so dismissed, even though wrongly, he could not claim to act in his capacity of architect. His only claim would be for wrongful dismissal. But when one comes to his position as quasi-arbitrator, his position as agent disappears, because the consenting parties of the contract, *i.e.* the building owner and the builder, have in point of fact made a submission under the Arbitration Act. That was the reason why Robins *v.* Goddard had not been put out of Court. The parties thereto came into Court with the express object of obtaining from minds especially trained in this very question the interpretation to be placed upon certain words. If there has been fraud (and of course defective work of any particular extent is undoubtedly put in under fraudulent conditions), the Statute of Limitations runs from the date on which that fraud might reasonably have been discovered. If the builder in the absence of the architect took advantage of that absence to put in bad work—that is clearly fraud which the architect could not have discovered on that day; but when the fraud is discovered later, the Statute of Limitations only then begins to run. The architect might, as Mr. Greenop had remarked, stand in a position of extreme vulnerability to the law's assaults; but he also stood in a position of extreme dependence on the law's protection. While one party thinks he is assaulted, the other party thinks he is protected. It had to be remembered that an architect as a professional man, whether qualified by examination or otherwise, was always subject to the law's control in so far as he holds himself able and willing to carry out certain work.

Mr. Blanco White (barrister-at-law) said that as regards the complaint that a building contract was interpreted in the same way as an ordinary contract, they must remember that not only is an architect and a builder concerned in it, but there was also the building-owner, who is a layman. The Courts cannot therefore be expected to regard a building case from the point of view of an architect, but they must interpret it in a general way. The question had been raised as to whether the architect was an arbitrator. Under some clauses he is the agent, and he is the arbitrator under others. In parts the R.I.B.A. conditions of contract required serious revision.

On the motion of the President, the meeting decided unanimously to adjourn the discussion.

The next meeting, which will be a business meeting, will be held on Monday, January 8, for the election of members and other business. It will be immediately followed by a Special General Meeting to discuss proposals of the utmost importance with regard to the Society of Architects, of which full particulars are about to be sent out to the members.

THE ARCHITECTURAL ASSOCIATION.

After the reading of Mr. Alan E. Munby's paper on "Is the Texture of Materials a Fetish?" on December 11, the following discussion took place:—

Mr. A. R. Jemmett prefaced his observations by remarking that his first trouble was to know what was a fetish. Mr. Munby had carefully defined "texture," but if he had given them a lead as to a "fetish" they would have been able to deal with him. Presumably a "fetish" was a sort of false god, so to speak. If that were so, he personally was inclined to think that the way texture was used in modern work and the amount of importance attached to it showed it to be most distinctly a fetish. In contemporary domestic work one found buildings in which greater importance was given to the materials than to the forms or the proportions. There seemed to be plenty of people who would let their buildings "happen," and their forms and shapes "happen," while trusting to find salvation by the beauty of the brickwork. But if one came to think of it, it would be found that the finer the design was, the less it depended upon the texture of material. In the case of a barn or hut the building might be saved by the material. But, say, in a Gothic cathedral or a Classic temple the finest and most characteristic effects are obtained by the spectator when he is at such a distance away as to be unable to see the texture. In St. Paul's the texture of the stone is of very little importance and has very little to do with the effects from the best view-points. Notre Dame would tell its story though it were of cement. The Parthenon at a distance of some hundreds of yards might have been of cement without loss of effect, for the texture disappears and one sees only the broad proportions, the relations of solids to voids, and so on. There was in modern architecture a very great danger of making texture a fetish. Mr. Munby had contended that a perfectly plain flat surface would have interest for nobody. That was obvious, for people will not look at anything which tells them nothing. From that point of view the production of texture constitutes the whole art of design. The architect uses texture so that the front of his building makes a certain effect. But to look at it merely as imparting variety of surface—a variety which would be hardly noticeable—was a mistake.

Mr. H. D. Searles-Wood, in referring to the use of wide mortar joints in brickwork, said that an architect who uses them ought to go back to his building after some time and see the damage due to the weather on them. It was just a point where texture ceases and the painful begins. It was sometimes very difficult to judge. Small bricks, which are just now such a fetish, do not make good brickwork unless one carried them right through the wall—and that was a luxury. At the recent Motor Show he had been particularly struck by the successful employment for the motor chassis of wood in a natural way without being coloured and varnished out of recognition.

Mr. J. D. Crace said with regard to the comparison made of Accrington and Clare bricks that it appeared to him that the charm of the latter was less a matter of texture than the actual mingling of colours in the softer brick. Texture ought to be confined to the natural colours rather than to the mingling of colours. It did not do to overlook the fact that certain stones are adapted for certain effects. The general employment of Portland stone was not a question of selection for its colour, but for the fact that it stood the English climate better than most materials available. Again, if one was employing Ham Hill stone it would be absurd to try and use the same sort of detail as in Portland. Whereas Ham Hill stone was admirably suited where the structure was extremely simple, it was unsuitable where one wanted to introduce elaborate carving. Therefore one must not regard the desirability of stone merely from the point of view of texture. Figured woods should not be carved, but if one wished to show a bit of wood, it ought to have a high polish on it. Mahogany or satinwood are thrown away unless a high polish shows it up in a way which would be impossible with its natural surface. He did not think that anyone would object to the natural surface of wrought-iron; in fact, there were a great many positions in which anything like a high polish would be out of place. There seemed to him a considerable risk in trusting too much to the adventitious circumstance of building materials. He noticed that whenever he was present at a discussion on colour decoration, people began at once to question whether it was more successful in oil or tempera or fresco. But that was all quite apart from the question of the use of colour.

Mr. T. L. Dale thought it was largely a question of what the architect was driving at as to whether texture was an important thing or not; it was likewise largely a question of scale. If one had a building of sufficient importance to produce a fine effect of itself, the texture was of slight moment; but if one had a small building like the ideal homes which some of them had to perpetrate then texture became a different question. In a very small object like a piece of jewellery or of porcelain the proper texture is necessarily very small. As the size of the object increases one eventually arrives at a texture which is very large in scale, as in the Houses of Parliament, where all the surface decoration is really texture. Then, again, if the architect is relying upon form, as in a Greek temple, he can afford to disregard texture. But, on the other hand, in the ideal villa the texture is perhaps the only means by which it can be made artistic. By too much reliance on texture, however, one might lose form. The Hammerstein Opera House in the Kingsway was in a sense a fine building in so much as the mass of the building is imposing in itself, while the architecture only gives it a texture and gives value to that mass while not competing with it. As the spectator was not interested in the detail the whole effect was obtained by the mass.

Mr. H. W. Brittan said he always felt that the Greeks purposely snubbed material. In their buildings everything was due to form, though the material in itself was fine. Because everything could be abused it was possible that texture might be made a fetish. The natural variations in the colour of brickwork were originally charming; but a demand from architects for such variations resulted in the makers producing them to order, with consequent loss in artistic effect.

Mr. A. E. Bullock spoke of the desirability of a little thought being employed in the use of materials like marble and alabaster if a good effect was desired. Alabaster possessed a much better texture for a small object like a mural tablet than marble. A Hopton Wood pedestal combined well with a marble bust.

Mr. J. B. Scott said he could not see how too much time could be spent upon the consideration of the texture of materials. There was no reason why an architect should go out of his way to carry out a work in an uninteresting manner out of fear that if he did otherwise he would be considered to be playing to the gallery. The materials of to-day were very much better than those of twenty years ago. And so was the domestic work. In a small house in the country a great deal depended upon the materials used. One of the speakers had said that on looking at a building a quarter of a mile away the texture was lost. But why should that be taken into account? The building had to be passed every day by people who almost had their noses against it. It was difficut to understand why design should be affected at all by a feeling for texture.

Mr. A. Horsnell alluded to the necessity of bearing in mind the suitability or otherwise of materials. He would have liked a more decided opinion from Mr. Munby as to whether he was really on the side of those who despised texture or otherwise.

Mr. T. C. Yates pointed out that Mr. Butterfield, who could not leave a yard of brickwork plain, had singularly failed in respect of texture. His weakness was exemplified in Keble College, and particularly in the chapel.

Mr. C. G. Boutcher thought that texture was all a matter for discrimination. The Greeks did not care a straw for it, but aimed at softness and mellowness. As for flat or polished surfaces, if one polished granite it acquired a greater density in tone and colour. A water colour drawing if glazed was deeper in tone than if unglazed.

Mr. A. T. Bolton emphasised the point that colour did depend in some measure upon texture, and was intimately connected with it. He could not agree with one of the speakers that the Parthenon would look as well at a distance if carried out in cement. The marble of which it is composed has a polish of great translucency and is seen under a brilliant sky—two trump cards which are not to be had in this country. Mr. Munby had been extraordinarily interesting in his paper because he had shown how science can help the architect. Many would have noticed the texture often seen on old walls. On one occasion, when he wanted to put up a piece of garden wall to look like old work, he got the necessary old stone and employed three or four labourers to do the work. The result was splendid. The local masons were horrified, however, and when afterwards they put up a further piece of walling they were allowed to do it their own way—with the exception that no pointing was permitted. The new piece looked exactly like a sea-side church. It was very important to work in the material with which the workmen are familiar. He agreed that the size of a building was an important consideration when studying the question. It always seemed to him that Westminster Cathedral would look just as fine, if not finer, if common stocks had been employed for the outside instead of the present expensive bricks. That was an illustration of texture carried too far. He quite agreed that design and scale had a great deal to do with the question.

Mr. Gerald C. Horsley, the president, in closing the discussion, said he agreed with Mr. Jemmett's view that in old times, at any rate, design counted for more than texture. But the old builders had in mind the effect of colour. Nowadays they seemed to have lost sight of it, although some of the speakers had alluded to it. The remark that each material should have its own treatment was most true; but the difficulty was to know what that treatment should be. He remembered a modern church with a roof of plain deal which looked very well; but the effect was destroyed afterwards by the application of horrible varnish. He supposed architects would gradually in their practice find out the best way of treating materials.

The vote of thanks was then carried unanimously.

Mr. Alan E. Munby, in replying to the discussion, said he quite agreed that if one had a big building and viewed it from a big distance one was independent of texture. But the question of architectural form was outside the discussion that evening, during which he had been trying to consider texture apart from it. Architects could now get 2-inch stocks, and there seemed no reason why good bonding should not be obtained if the work was carried right through. Such work was not oppressively expensive. Ham Hill stone was a stone which could be recommended for its own sake and for use where much architectural carving could not be afforded. For the humblest buildings architects must certainly depend upon the character of the materials as such without the help of architectural form. He cordially agreed that there were certain limitations which had to be recognised. Personally he did not think that the worship of materials was overdone by the ordinary architect. They ought to regard it, especially in smaller work.

The next meeting of the Association will be on January 15, when a paper will be read by Mr. E. F. Strange, entitled "Alfred Stevens."

THE SOCIETY OF ARCHITECTS.

THE second ordinary meeting of the Society of Architects for the Session 1911-12 was held at 28 Bedford Square, W.C., on Thursday, the 14th inst.

The President, Mr. Geo. E. Bond, J.P., having taken the chair, it was resolved that the minutes of the previous ordinary meeting, having been printed in the Journal, be taken as read. The minutes were then confirmed and signed. Ten nominations for membership and nine for studentship were announced. The ballot was then taken, and seventeen candidates were declared to be duly elected as members and five as students.

Mr. G. A. T. Middleton, A.R.I.B.A. (Past Vice-President), Hon. Librarian, then read the following paper on

Alexandria: its Place in Architectural History.

On account of its geographical position and fine natural harbours, easily made more safe by artificial means, Alexandria has necessarily been the most important seaport of Egypt for many centuries, while it was for a considerable period one of the very greatest cities of the civilised world. This was during, and extended beyond, the fourth important building epoch in Egyptian history, that known as the Ptolemaic, its greatness lasting from the days of Alexander the Great—say, roughly, from 330 B.C. to the seventh century A.D. Near as it is to Cairo, there seems to be no evidence that it was a place of importance when the pyramids were building, four thousand years before that time, nor even during the Proto-Doric or the Theban periods; but at the later date referred to, when there was a renaissance of Egyptian architecture at Edfou and Philæ so closely resembling the Theban work of Karnack and Luxor as not at first acquaintance to be easily distinguished from it, Alexandria was at the height of its prosperity. It occupied a position where many influences met. It was founded and colonised almost entirely by Greeks at first, these being afterwards augmented if not supplanted by Romans; and it traded with all parts of the Eastern Mediterranean by sea, and simultaneously up the Nile with Egypt, and by caravan even with Assyria and Babylonia.

Thus it was the natural meeting place of many influences, particularly at the time when Greek art was declining and the Roman scarce developed; yet not much is known of it, and the archæologist and the inquirer into the evolution of architectural forms had troubled little about what its ruins might have to tell; for, not once but several times, it has been ravaged and destroyed, and the remains of its former glories are comparatively few, and the actual dates of such fragments as have been discovered can by no means be determined with precision. Even the buildings of which they formed a part can, as a rule, be only guessed at, so complete has the destruction been, and apparently so scant the care taken to record, even approximately, where the remains have been found; the site of the ancient city being now occupied by a modern town, partly Arab and partly European, or submerged beneath the waters of what is called the old harbour (now cased with a sea-wall), while a new harbour with great wharves and quays occupies a large area to the south of it. Excavating and investigation have been unmethodical and spasmodic, and far more frequently undertaken for the purpose of utilising the masonry of former structures for the erection of new ones than for archæological research. Even at the present time a low hill, honeycombed with catacombs, is being quarried away bodily to provide stone for a new quay in the harbour, which is to become the Mediterranean terminus of the Cape to Cairo Railway.

Under such circumstances it is to the museum that a visitor naturally turns first for enlightenment; to be met, to a certain extent, but not entirely, by disappointment. It contains, it is true, numerous objects possessing both interest and beauty, arranged with considerable regard to artistic effect; but it is necessary to make one's own deductions from them. Of orderliness, in the scientific sense, there is little, for though here and there an attempt has been made to collect statuettes or architectural features into groups, there has been scarcely any effort to differentiate with regard either to probable date or to locality of discovery—in most cases probably unknown. The descriptions attached to the exhibits are silent on these points, having been obviously composed by one who was more enthusiastic as an art critic than as an archæologist, and consisting for the most part of eulogies in French upon the beauty of the object, its contour, modelling, and colour, wholly valueless to one in search of knowledge and capable of judging of these things for himself. It is only possible, therefore, to accept the collection as being Alexandrian, and to apply knowledge acquired elsewhere to the double task of first producing some order out of the prevailing chaos, and then discovering in what way and to how great an extent Alexandrian architecture was influenced by what went before it, and how it afterwards influenced what was to come.

The lessons learnt, if not many, are by no means insignificant, but before those of the museum itself can be fully understood it is necessary to pay a visit to the principal catacombs, which are under the control of the museum authorities. The central chamber, reached by a spiral staircase from the surface, and cut in the solid rock, is said (on doubtful authority) to be the tomb of Caracalla and his wife. At any rate, its entrance is flanked by indifferent statues of a Roman emperor and Roman lady; but these are probably of later workmanship than the chamber itself, as are also certain obviously Roman sarcophagi and Roman urns. The architectural and sculptural embellishments of the room and its immediate approach are of the most mixed character imaginable; but they agree in their indications of date, and leave little doubt about the work having been done, most of it, about 200 B.C. There are pilasters with lotus capitals, such as one would expect to find in the purely Egyptian work at Philæ, executed in the Ptolemaic period; before the entrance are two columns, with Egyptian entasis, but capitals of mixed Greek and Egyptian character, having volutes such as those of the well-known capitals of the Choragic monument of Lysicrates, at Athens, springing, by no means incongruously, out of lotus buds and flowers instead of acanthus leaves; round the inside of the chamber there runs an ovolo moulding enriched with the egg and tongue, carved in a manner which suggests late Greek workmanship; while the wall carvings are of Assyrian or Babylonish character, human figures with heads of beasts or birds, executed in low relief, coarser in execution than the wall slabs of Nimroud palaces, because cut in a coarse grained soft stone and not in alabaster, but just as vigorous and a trifle more malignant in expression. Then, in three places, over large semicircular recesses, the shell ornament appears, exactly as it is found in Renaissance work in Italy. This is inexplicable, except upon the hypothesis that the ornament was common when the catacombs were excavated (in other words, when Alexandria was at the zenith of its glory); or alternatively upon the supposition that this decoration is not ancient at all, but fraudulently imitative work of the European Renaissance period. The probability is that it is ancient, for while the shell ornament is not to be found in the museum, it contains examples which suffice to indicate that the other architectural embellishments of the catacomb chamber, such as the carved capitals and the egg and tongue enrichment, were by no means uncommon in Ptolemaic Alexandria. There are, for instance, several small capitals in a fair state of preservation, carved in the soft local stone, of the well-known character of the work at Edfou and Philæ, generally representative of the palm or the lotus flower and bud, purely Egyptian and of Ptolemaic date, displaying no sign of Grecian influence, and only differing from the better known and similar work of Middle Egypt by the more delicate and finer craftsmanship displayed, and to that being carved which at the earlier period would more likely have been merely painted; this being clearly due to the use of a soft stone instead of granite or basalt. It is not exhibited, for instance, in the one Hathor-headed capital which the museum contains, which has been sculptured out of basalt with the usual avoidance of unnecessary detail and emphasis of essential form to be found in Egyptian carvings in hard materials of all dates.

Just as it is not surprising to find purely Egyptian characteristics in the ornament of the catacomb chamber, so is the presence of Greek feeling only what might be expected. Essentially, Alexandria was a Greek colonial settlement, if not at one time the greatest centre of Greek civilisation, and the museum contains more architectural objects of Greek spirit, both in design and execution, than almost any other in the world—all presumably local. Thus the Greek egg and tongue is a common enrichment. It is seen, for instance, on a few Ionic capitals, enriching the echinus in the usual way, while the abacus is similarly enriched with the leaf and tongue, all sharply cut after the typical Greek manner, particularly that of a somewhat late date, such as is found at earliest in the Mausoleum at Halicarnassus (B.C. 350). The shallow character of the volute also suggests late workmanship; it recalls that of the Nereid monument from Lycia, now in the British Museum, which is generally considered to belong to the first century B.C. The Alexandrian examples probably belong to a period between these dates.

So far as the multitude of examples may be taken to indicate anything, however, they give the undoubted impression that the principal Greek work at Alexandria was of the Corinthian Order. It is well known that to the west of Greece, in Sicily and Magna Græcia (Southern Italy), the Doric Order was employed exclusively, while to the east, along the Syrian coast, the Ionic was used as universally. In Greece itself, as at Athens, the greatest buildings were Doric, those of secondary size and importance were Ionic, and only the tiniest and most delicate gems were Corinthian—that is, in the days of independence. Later on, when the Romans ruled, the great Temple of Jupiter Olympius was, it must be admitted, erected in the Corinthian Order.

But the recognised examples of Greek "Corinthian" are extremely few, so few that they can be numbered on the fingers of one hand. The Choragic monument of Lysicrates, very small, has generally been considered the most typical, till the discovery of the more beautiful capitals of the internal order of the Tholos at Epidaurus. Both of these examples have tendril volutes springing from acanthus leaves, and so probably had the elliptical capital, of apparently late workmanship, which was brought from the site of the Temple of Diana, at Ephesus, and is now in the British Museum. As a rule, in the known Roman examples of Corinthian capitals the tendril is stiffened and strengthened till it has more the appearance of a voluted leaf—so much so that the gradual evolution from it, through Romanesque work, of the French "crocket" capital has been traced, in which the leaf is that of the hart's-tongue fern when partly open.

Is it possible that Alexandria was the real home of the Corinthian Order, and that the tendril volute was a mere local variation, beautiful but not essential to it? In the numerous examples in the Alexandrian Museum the tendril volute is never found, but it is replaced by a broad voluted leaf at the corners—though tendrils are used for the caulicolæ. The capital in this form is exquisitely beautiful and structurally strong enough for employment on a large scale—and several of the numerous examples are quite large; while the development from it of the Roman form is natural and easy. Possibly the type persisted for a lengthy period, bridging the gap between the Greek and Roman, for it is found in the Khartoum monument, recently compiled from ancient fragments, of which the capital is Greek (about 200 B.C.), and in the capital of Pompey's Pillar, known to have been erected in 302 A.D., which is Roman. But in almost every instance both the general spirit and the workmanship are Greek. On the other hand, there is at least a possibility that the arch was known and used. One of the largest and most exquisitely designed Corinthian capitals is so contrived as to rest partially upon a semicircular attached column, and partly on the wall to which it was connected, having a pilaster strip upon its flank. This is compatible, perhaps, with trabeation, but much more so with arcuation; yet in the absence of any further records of the building which this capital enriched, or even of where it was discovered, further speculation is vain.

There is only one Doric capital in the museum, and that is of exceedingly late Greek character, and carved in the local white stone, with a shallow abacus and echinus, and with annulets replaced by flat bands, like those found just below true Egyptian capitals of all known types and dates. Again, it is possible that an intermediate form is recognisable between the types of Greece and Rome, but the evidence is insufficient to base a theory on. Certainly there is another similar capital near Alexandria, lying on the beach some half-mile to the south of Nelson's Island and the Bay of Abou Kir, so like this one in size and workmanship, so far as can be judged (for it has suffered much from the action of sea-water), that it might well have been another of the same range as that in the museum. No more than this could be said, if it were not for abundant evidence that here, upon the shore, some fifteen miles from Alexandria itself, there was at one time a place of considerable size, possibly a pleasure resort (Canopus is known to have existed somewhere in this neighbourhood); for the shore-line is broken up into a series of small, well protected and almost land-locked bays, with sandy beaches separated from one another by low headlands of coral rock, forming safe and delightfully picturesque bathing places. Overlying the coral there is a softer rock, little better than compacted sand, which forms a low cliff, nearly vertical, and against this as a backing there have been buildings in the Roman period, extending out towards and in some cases into the sea. For a length of close upon a mile there are constant evidences of this, the escarpment being in some places given a facing of Roman tiles (or bricks), sometimes plastered on the surface, and sometimes of squared masonry; while in other places cross walls of the same materials project from the cliff towards the sea; and in yet others, and much more frequently, the coral bed has been worked in the solid into the shape of rooms with intervening walls, the present level of the floors being sometimes below and sometimes above the water level—which varies little, for there is scarcely any tide. Some of these floors, generally those of small square rooms, are plastered, and the plaster is carried up the sides as high as the coral goes—some eight or ten inches perhaps; but the walls once erected on these coral foundations have almost entirely vanished. Yet in one notable instance at least a mass of squared masonry still exists, surmounted by rubble, raised upon a tiny coral island some twenty yards from shore, but still easily reached by using as stepping-stones the remains of the low coral walls of a series of intervening hollowed chambers, sunk but little below sea-level. When closely examined this masonry is found to be cemented by an exceedingly hard mortar, containing white marble chippings and crushed Roman brick. The presence of a lime-kiln some two hundred yards inland from the cliff edge indicates where the lime may have been obtained from.

Most of these indications of a Roman settlement are fragmentary, and need careful surveying for their elucidation, but upon one of the promontories there is something more, the remains of what was obviously once an important building. Close to it, upon its north, there lies the Doric capital already referred to, having a diameter of 20 inches, and a little further north again is a broken drum of a column, the approximate diameter of which is 22 inches, of a beautiful blue marble veined with white. On the other side of, and almost adjoining it to the south-east, half-submerged in water, are great masses of worked granite, having every appearance of being portions of an attached colossal statue of Ptolemaic Egyptian character. Casual inspection from the shore could determine no more than this, though one fragment looked as if it were reeded; a well-equipped party might spend some time in discovering more among the surf. So, too, it is with the building, of which a few rough dimensions only could be taken by a solitary individual having only a 2-feet rule in his pocket, and but a short hour or two at his disposal. There would even be some danger in making a close examination of the passages through the apse walls, considering how the sea pours through. It is all submerged, it must be remembered, except the "walls," and these are not built, but formed of the solid coral rock, out of which the chambers and channels have been hollowed; and the chambers are cut to a greater depth seawards than towards the shore, where they eventually rise above sea-level, as if they had been the ante-rooms to an enclosed sea bathing establishment.

(To be concluded.)

ENGLISH MEDIÆVAL ARCHITECTURE.—IX.

In his eighth lecture of the course at University College, Gower Street, W.C., Mr. Prior had treated of the fourteenth century decorative element, and towards its conclusion had dwelt on the importance of the local styles which the masons of Bristol and Gloucester produced, because out of the Gloucester style came Perpendicular building.

At Bristol, remarked Mr. Prior in his ninth and semi-final lecture, quite a new idea appears. The most peculiar development is its system of skeleton constructions applied to the spandrils of arches on the same principle that had been used to create tracery under the arches in windows. In the window the result of the thinning-out and simplification of the stone lines had been that the original arch-forms of the lights ceased to be expressed. The skeleton treatment of the spandril was attended by a similar tampering with the constructive arch-forms in construction itself. It is to be noted that fancifulness in arch construction had been specially apparent in the decorative fanes of the fourteenth century masons of the West of England. But the choir of Bristol is distinguished by something more than fancifulness. We see the deliberate purpose of evolving a superficial formula of construction—one that could treat every surface, whether wall, window or vault, with similar spacings. There begins here that system by which wall and window were given vertical divisions, and then by horizontal transoms spaced into a series of exactly similar oblongs. At Bristol the original constructive lines of arch, of pier, and of vault rib underlie and still control this decorative panelling; but as the standard method took hold the constructive arches lost their aspiring curves and grew more and more into relation with level horizontal lines.

Now in this treatment of building form must be recognised the shop-work discovery on which the commercial distribution of decorative art lives—viz., that a rich appearance of decoration may be combined with the expenditure of the smallest executive value. The repetition of similar features is one of the stock devices of trade economy. The extent to which it is carried in the rebuilding at this date of the choir at Wells shows the western mason not only as a clever constructionist prepared to carry out stone-work in any fanciful shape, but as a commercial artist working on an organised system, and gaining custom by supplying rich effects at a small outlay. The western mason in this was developing principles which belong to trade, but not to building. He started, however, a condition for a new architecture, and he is to be credited with the evolution of a new architectural style. It was in the Gloucester rebuilding of 1350 that we see the full establishment of it. Here the panels and cusps represent no structural expediency, but are just a decorative skin effectively spread over and depending on the underlying Romanesque massiveness. But at the east end the Romanesque apse was entirely removed, and here appears the extraordinary technical ability of the Gloucester mason. Nothing so big and so light was ever built by a mason as that great east window. It is a good 100 feet in height, and is some 40 in width on a bayed plan, and built up as light-heartedly as if it were a chantry enclosure 15 feet high. Yet the screen shows no sign of weakness.

Such a screen, however, must not be suspected of coming into existence just as a tour de force of masonry or just to display a method of stone-handling—the meaning of it all lay in the glass-painting craft. The mason had sold his birthright when he ceased to be a sculptor upon his building. During the thirteenth century glass-painting had progressed from symbolic and decorative pattern-work to the pictorial representation of the sacred story. He now began to control the mason style by his demand for oblong uniform spaces. Indeed, all through the fourteenth century the church fabric was becoming more and more a framework or background to be given meaning by the numerous crafts independent of the building instinct. Fourteenth century style must be taken as a combination of the accessories, and out of these conditions came the Perpendicular style.

Up to 1350 style had kept a continual progress of invention in architectural detail. This progress ceases all through England for the 150 years of Perpendicular—there is, broadly speaking, little change in the forms used in church building from 1380-1520. The parallel movement heretofore witnessed in all the countries of West Europe now ceased also, and a separate and distinct mannerism declares itself in each of the principal national architectures. The English Perpendicular was a mannered and a local type.

In a certain sense the Black Death of 1349-50 and its two or three recurrences was an active cause of some of the Perpendicular peculiarities. With the population wiped out wholesale (for in large parts of England two-thirds perished), a stop was put to building through lack of labour and lack of funds. Churches begun with sumptuousness were continued at a later date shorn of decorated profuseness. But there are places where this suggestion of a break in style is less conspicuous. At Gloucester work went on continuously on the same lines all through the period of the plague. As a result when building operations began again to be usual the Gloucester masons and the Gloucester masoncraft were in a position to take the lead.

The two Despencer monuments at Tewkesbury, about 12 miles off, have all the system of Perpendicular style. In the ceilings of these chantries, 1350-75, are found too indications of that ceiling form which is regarded as the chief glory of Perpendicular style—the fan vault. For the small area of a chantry ceiling (some 6 feet across) the construction of a vault has no need to rely on the arch. Corbels or brackets form the piers of the enclosure, and slabs laid upon these made the easiest, cheapest construction of ceiling. The conventions of vault-making indicated that these corbels and slabs should be carved to suggest the ribs and interspaces of building vaults. There was, however, no need in such toy-work to curb the fancy as to patterns. So all kinds of delicate lace-work based upon the suggestions of window tracery appear.

Perpendicular style is distinguished by the elaboration of its vault patterns, which are usually put into two classes—viz., lierne vaulting and fan vaulting; but midway examples are common. The distinction of the forms is that in lierne vaulting there is still the acknowledgment that the arched ribs, transverse and diagonal, make the foundations of vault-construction; while in the fan vault this acknowledgment is disguised, and in the latest examples there appears the profession of hanging the ceiling upon nothing. In reality the diagonal arches are suppressed, and stability is dependent on transverse arches—there being from arch to arch cunningly constructed barrel vaults. But such treatment as in the Gloucester cloister, c. 1380, seemed at first too daring for the high vault, and when, like in the choir of Gloucester, the spans were some 40 feet wide, the vault is made to proceed upon rib structure. Yet all the same there is really a denial of the Gothic construction of arched ribs. There is extraordinary skill in the way this is done at Gloucester, Winchester, and Canterbury, so that the vault sets like a dish-cover upon the walls without exerting thrust on them, and so not needing the support of flying buttresses. But the curves of the "dish-cover" require a good upward spring to obtain such stability. Now economy of height in roof was becoming more and more an object to the fifteenth century builders. So the four-centred type of arch was found to be imperative. The difference between the lierne and fan construction was, in fact, simply one of the generating arch form.

It can be judged what a science of architectural engineering the building of such vaults has become. Its aims are no longer, as in the thirteenth century, to let construction display itself in form, but rather to cover up construction with the appearance of a feathery intricacy. Mathew Paris describes the process of the start in a great building with the words "congregati sunt artifices"; but in the fifteenth century there are detailed specifications and contracts.

The Black Death altered the status of all monastic institutions and marked the beginning of the suppression of the monasteries. They were no longer aristocratic establishments, but were reduced to few inmates or wiped out altogether. Hardly any recovered their importance. In a broad sense there was a dwindling away of that monastic building which had formed the chief work of architecture. There came in the place of it, first, college building; secondly, parish church building. We have to recognise a bureaucratic supervision as conditioning the great fifteenth century building of colleges and chapels and the rebuilding of monastic houses.

Yet this last word of Gothic mechanism was not the chief interest of the latest phase of English mediæval building.

Throughout the breadth of England there was building at the same time a people's architecture reflecting new phases of fifteenth century life. From the Conquest up to the middle of the fourteenth century parish church building had been but an insignificant factor in the creation of style in comparison with those of abbey and cathedral building. In many places the churches were on the traditional Saxon planning; in others they followed the monastic model. In the thirteenth century the long parish chancels with wood roofs made a subsidiary development somewhat outside the monastic lines. The fourteenth century developed churches built strictly on the traditional lines of Saxon planning, yet in area larger than the cross-planned parish churches. The supreme example came in the great church at Boston, with a length of over 200 feet and a width of some 90 feet. Of its type are many churches all over England.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

A GENERAL meeting of the Society was held on Thursday evening, December 14, at the Leeds Institute, the President, Mr. Sydney D. Kitson, M.A., F.R.I.B.A., in the chair.

Mr. A. E. Dixon, F.R.I.B.A., of Birmingham, read his interesting paper on the "Early Roman Churches" to a number of members and associates. The lecture dealt with the early Christian churches of between the third and ninth centuries, also mentioning the chapels, tombs, and catacombs. In dealing with the various features of these buildings the mosaics commanded special attention, being illustrated by a number of excellent slides showing the decorations to the apses of many churches. A remarkable feature of the subjects of these mosaics is their peaceful seriousness, humour, and scenes of judgment or retribution are entirely absent. In contrast to this, the lecture was concluded by a few slides showing grotesque capitals from the neighbourhood of Poitiers, where in all cases grim humour was the predominating subject.

An appreciative discussion followed, and Mr. H. S. Chorley, M.A., F.R.I.B.A., proposed a hearty vote of thanks, which was seconded by Mr. A. E. Kirk, A.R.I.B.A., and supported by Mr. C. B. Howdill, A.R.I.B.A.

THE PLUMBERS' COMPANY.

A DINNER was given on Thursday, December 14, by the Worshipful Company of Plumbers at De Keyser's Royal Hotel, E.C., to meet the Lord Mayor and Sheriffs of the City of London. The chair was occupied by the Master, Sir T. Vezey Strong, K.C.V.O., Alderman. Among those present were Sir Thomas Boor Crosby, M.D., Mr. Sheriff George Briggs, Sir Hugh Owen, Sir Thomas Barlow, Bart. (President Royal College of Physicians), Sir Shirley F. Murphy, Sir A. B. Whitelegge, K.C.B., Mr. Leonard Stokes, P.R.I.B.A., Sir R. E. Cunliff, Professor A. Bostock Hill (President of the Incorporated Society of Medical Officers of Health), Dr. A. E. Newsholme (Medical Officer to the Local Government Board), Mr. E. B. Barnard, J.P. (Chairman of the Metropolitan Water Board), Mr. H. Percy Boulnois, M.Inst.C.E. (Chairman of the Royal Sanitary Institute), Professor W. R. Smith, M.D., J.P. (Principal of the Royal Institute of Public Health), Mr. W. D. Caröe, M.A., F.S.A., Mr. Edmund Kirby, F.R.I.B.A., Dr. W. H. Hamer (Medical Officer L.C.C.), and many others.

After the loyal toasts had been honoured, Sir Thomas Barlow, Bart., K.C.V.O., M.D., proposed "The Lord Mayor, the Corporation, and the Sheriffs of the City of London." He said that the profession to which he belonged was proud of the Lord Mayor because they knew him of old, and knew his qualities. They as doctors had always believed that the life of a busy doctor, with its many interests and dealings with all sorts and conditions of men, was no unfitting introduction to the highest civic duties. As for the Corporation, the sanitary arrangements, the administration of justice, and many other things made London the greatest city in the world, and they tended to become more and more admirable.

The Right Hon. Sir Thomas B. Crosby, M.D., the Lord Mayor, in responding, said he had seen no change in the excellence of the work done during the thirty-four years of his membership of the Court of Common Council. The members brought to the business of the Corporation that energy and knowledge which put them at the head of successful businesses of their own. It was undoubtedly a bold stroke for an octogenarian to have entertained the idea of holding the office of Lord Mayor of London.

The toast was also acknowledged by Mr. Sheriff George Briggs, who especially alluded to the high sanitary importance of the Company's work.

Mr. Leonard Stokes, in proposing "The Plumbers' Company, Root and Branch—May it Flourish for Ever," said he felt very diffident in rising to propose that toast. His excuse was that the profession to which he had the honour to belong owed a great debt of gratitude to the Company. As an architect, he always had the greatest dread of plumbers, as for instance that the sheet of lead the workman had before him was not of the proper thickness. However, architects owed a great deal to plumbing, and particularly to the Plumbers' Company. Without the assistance of the Company plumbers would not be half as efficient as they were. Personally, he had always found them most excellent workmen, and had never had any serious fault to find in the plumbing on any building he had been connected with. The plumbers brought the water in and they kept it out. He would like to congratulate the Company on their Worshipful Master, whom he had had the honour of being connected with and whom he had found to be a most extraordinary man with a passion for work. He thought they had done wisely in getting Sir Vezey Strong to be their Master for a second year, for in his hands the Company could not do anything but prosper.

The Rt. Hon. Sir T. Vezey Strong, in reply, said the form of the toast is ancient, its substance is modern—intensely modern. It is not too much to say that every household in the United Kingdom is vitally concerned in what this toast implies. On the efficiency of our sanitary and water systems and services, the health and much of the comfort of the daily life of the people depends, especially that great and growing number of the population which live in the cities and towns. But it is not only in regard to these services that the public are concerned. The great question is raised of the true relations of ancient and modern methods of securing to the craftsman and the citizen their respective equitable rights. In a word, the Plumbers' Company, like many, if not most, ancient institutions, is on its trial. It is called upon, at any rate, morally, to justify its existence. The toast raises the question, are the roots of the old institution in sound ground, and are its branches making healthy growth? Within the last fifty or sixty years the whole relations of the building trade, in which the plumbers play such an important part, to the public have been changed fundamentally. London does not now possess a single firm of plumbers working on the lines of fifty years ago in regard to the training of its craftsmen, and the primary conditions under which their work is carried out.

The root of the Plumbers' Company lies buried in the depths of the unrecorded past. So far back as Edward III. ordinances were granted to the Company. The object is clearly indicated in each rule, and it is expressed in the later Charter of James I. The object is to prevent the trade being "scandalised or the commonalty damaged and deceived," and to do this, it is enacted that "no one of the trade of plumbers shall meddle with works touching such trade except by the assent of the best and most skilled men in the said trade testifying that he knows how well and lawfully to do his work." The "branch" of the Plumbers' Company spreads over the United Kingdom now, and many men holding the Company's certificate are to be found in the Colonies and distant parts of the Empire. The Company seeks to extend the principle on which the Guild was founded—namely, that craftsmanship and citizenship should go hand in hand. The citizen should recognise and respect the craftsman, and the craftsman should remember the duty he owes the citizen, to give him good work. Under modern conditions the craftsman and the citizen are by no means in close relationship, as they were even fifty years ago. Now the general contractor, or other middleman, comes upon the scene. This changes the close connection of citizen and craftsman. The question of middle profit arises. This change may be unavoidable, and may, in some respects, be advantageous. Nevertheless the qualification and the responsibility of the craftsman must remain and be recognised by the citizen, in the shape of adequate payment for good work. There are two great evils in our present industrial system, first that it makes less provision for systematic training, and that the indirect relation between the producer and the consumer tends to reduce the sense of responsibility of the craftsman. The method by which these evils are being met by the Company is unique. A close working arrangement has been made between the representatives of the plumbers of the Kingdom and the Company with the co-operation of the official and professional representatives of the citizen. The root principle of ensuring the proper training of the craftsman and maintaining his personal responsibility to the citizen is thus upheld. By this co-operation provision is made for the technical and practical instruction of apprentices and young men entering the trade, their examination, and the registration of qualified men who are made responsible to the Company for the efficiency of their work. This system has been greatly strengthened by the marking of registered plumbers' work. The Board of Trade, under the powers enabling the Board to allow the registration of special trade marks where the Board deem it to be to the public advantage, have granted to the Plumbers' Company the registration of a standardisation mark to be used in connection with the work of registered plumbers. To ensure the efficiency of the domestic fittings of our sanitary and water services, the Board of Trade have also granted the registration of a standardisation mark for fittings of adequate quality, to be used as far as possible in connection with the work of registered plumbers. This mark is granted to a joint committee of water authorities, to be used under regulations framed by the Board of Trade. The principle of trade marks to distinguish proprietary interests in various articles has long been recognised, and it has no doubt gone far to secure the fair interests of producers and consumers. But the Act of 1905 extended this principle in a most beneficent direction by enabling the Board of Trade to allow marks to distinguish articles possessing certain characteristics which anyone could supply to the public so long as the article complied with the definite standard of quality indicated by the mark. All may well congratulate the Board of Trade alike on this valuable addition to their statutory powers and their early application of those powers to the protection of the public in the important matters of plumbers' work and of water services. In no case could such protection be more needed. Where considerations of health and the importance of avoiding the great waste and contamination of water are concerned, efficiency must be regarded as the first consideration. At present the health and water authorities are not generally sufficiently empowered to enforce safeguards for the efficiency of workmanship and material used in the work of plumbers.

Doubtless further legislation on this subject is long overdue. But in the meantime these authorities and the public may do much to protect themselves by the means which the Board of Trade have placed within their reach. By the proper use of standard marks the old ideals of excellency of workmanship and responsibility of the craftsman are kept steadily in view. By the further co-operation of the authorities with the Company, and the insistence of the public to require these marks, the old ideals may become more widely recognised, not only in the case of the plumber, but in other industries. The progress already attained provides an important practical illustration of the adaptability of the ancient institutions of the City to modern needs. Under the ancient system the relations of the craftsman and the citizen were regulated by rules proposed by the craftsman being subject to approval by the Corporation acting for the citizen—under our modern methods the representatives of the craftsman and of the citizen act in concert. History repeats itself even in the modern mark allowed to be affixed to the work of registered plumbers, as the Charter of James I. grants to the Company the right to use as a sign of quality "the image, impression or sign of St. Michael the Archangel," symbolising the Destroyer of Evil as representing the works and aims of the Company.

The Master then proposed "Our Guests," remarking that they included many members of the medical, architectural, and engineering professions.

Professor A. Bostock Hill, M.D. (President of the Incorporated Society of Medical Officers of Health), replied, and paid a tribute to the work of the Plumbers' Company in promoting public health.

OUR CONTEMPORARIES FROM OVERSEAS.

The *American Architect* (New York) has issued a special number dealing with apartment houses, of which geometrical plans, elevations, and details are given, as well as photographic views and perspectives. Articles are included on the planning of this type of domestic building, and the number is a useful record of its latest development in various parts of the United States. Other recent issues illustrate country houses by Messrs. Albro & Lindeberg, Messrs. James E. Ware & Sons, and Messrs. Bohnard & Parsons, and town-houses by Mr. Arthur B. Heaton. Successful designs in the Public Auditorium Competition, Portland, Oregon, and in the competition for the Vocational High School, Syracuse, N.Y., are also published.

The *Architectural Record* (New York) has a very interesting number, with illustrated articles on the Passing of Madison Square Garden, the Palace of the Popes at Avignon, Some Century-Old Doorways in Rural New England, Early American Churches. In the series of articles on the architecture of American Colleges, Union, Hamilton, Hobart, Cornell, and Syracuse are now dealt with. Illustrations of current architecture in New York and Cleveland are also included.

Der Architekt (Vienna) contains illustrations of domestic work of various kinds in Buda-Pest, designs by Bohemian architects, all of new-art type, and a photograph of the interior of the choir of the church at Dürnstein, a remarkable piece of Rococo architecture.

Arkitektur og Dekorativ-Kunst (Christiania) gives an illustrated description of Hampstead Garden Suburb and Bournville, and reproductions of premiated designs in a competition for a country hotel.

Arquitectura (Barcelona) illustrates several works of the illustrious architect Don Ricardo Magdalena y Tabuenca of Saragossa, and details of some of the remarkable modern Gothic carving in the new cathedral of Vitoria, of which Don Julian Apraiz and Don Francisco Javier de Luque are the architects.

Berliner Architekturwelt (Berlin) is a monograph on the new Stadthaus of Berlin, of which Herr Ludwig Hoffmann is the architect, and a very fine set of illustrations of the building is given.

La Construction Moderne (Paris) illustrates a villa at La Roque, a modern French attempt at half-timber work, and some furniture from the Salon d'Automne, which is far more satisfactory.

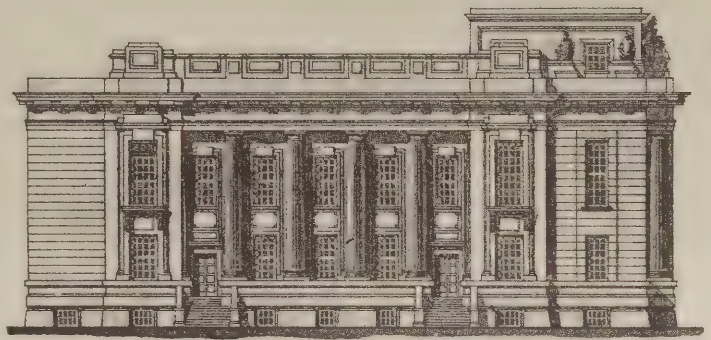
Deutsche Bauzeitung (Berlin) has recently published descriptions and illustrations of the new Rathaus at Schöneberg, further views of the new Stadthaus at Berlin, and an illustrated article on the civic architecture of Prague.

Moderne Bauformen (Stuttgart) for its principal subjects gives photographs of the Evangelical Church at Flavil in Toggenburg and a house at Vienna for Herr Director Franz Rauch. Several works of Paul Baumgarten, a Berlin architect with a gift for the picturesque, and the extension of the Museum of Technical Art at Cologne by Franz Brantzky are also illustrated.

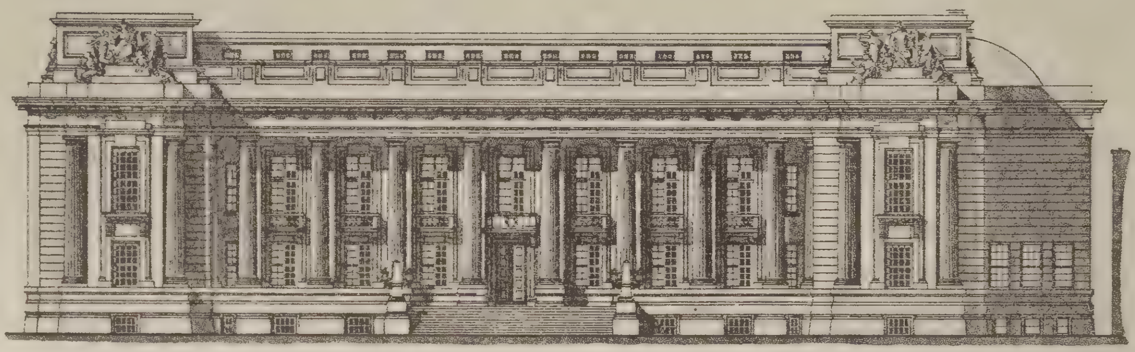
The *Western Architect* (Minneapolis) has for the subjects of its illustrations this month the First Congregational Church, Kansas, Missouri; Princess Theatre and Studio Building, St. Louis, Missouri; City National Bank, Mason City, Iowa; Y.M.C.A. Building, La Porte, Indiana; Garage and Sub-station for Minneapolis General Electric Co.; First-prize design for Temple of Justice, Washington State Capitol Competition; a two-storey shop front; an apartment building, St. Louis, Missouri; and detached houses at Chicago, Los Angeles, and Oakland, Missouri—quite a representative collection of modern American architecture of the everyday sort.

The name of the donor of the sum of £30,000 to London University—the gift of which was announced in these columns last week, and which is to be expended primarily on the School of Architecture—must, for the present, remain unknown, but it may be stated that it is a person with a keen interest in architecture who desires "to see the completion of one of the most beautiful buildings in London." The new buildings are to be erected at the north-west of the present building. The gift was accepted with gratitude by the Senate, subject to the formal submission of the matter to the Academic Council, from an educational standpoint, and to the Finance Committee from other aspects. The Senate of the University will, it is expected, be in a position to proceed with the work as soon as the two Committees have formally dealt with the subject. The new buildings will be in keeping with the existing main block, and will occupy a site slightly recessed from, but on the frontage of, Gower Street. With the new chemical laboratories, which are to be built on the north side of the University College property, the premises will, in the near future, form a very important and extensive block, the architectural character of which will be of a notable kind.

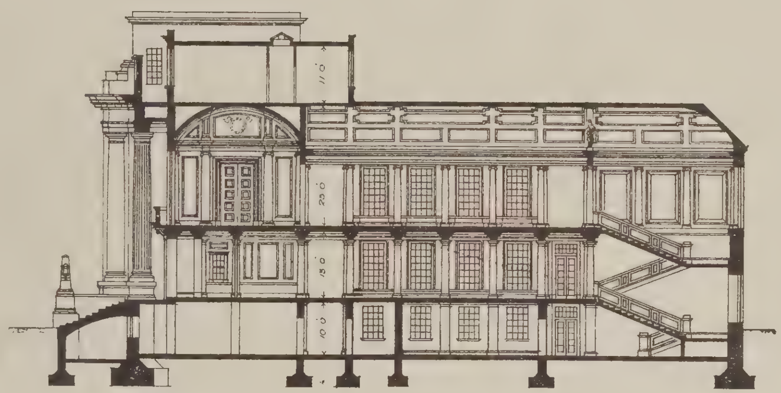
MARYLEBONE MUNICIPAL BUILDINGS.



EAST ELEVATION.



NORTH ELEVATION.



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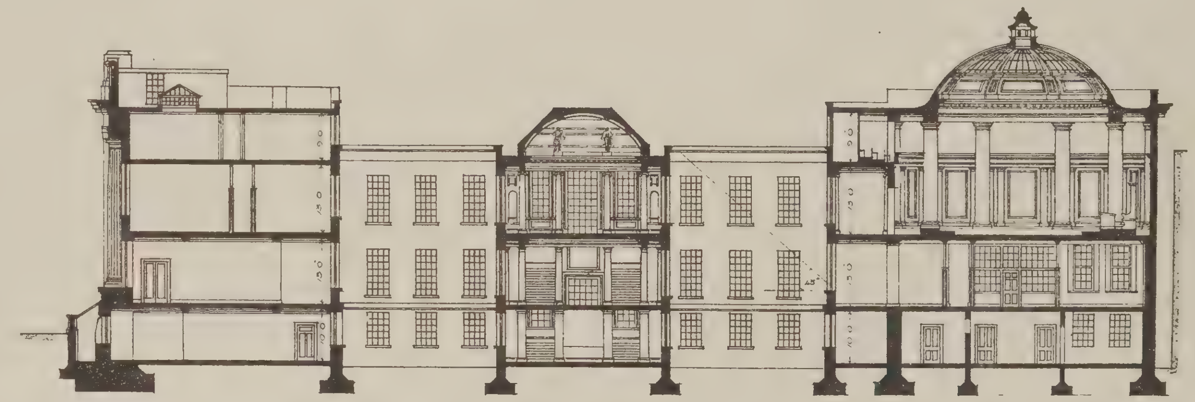

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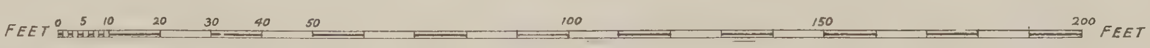

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MARYLEBONE MUNICIPAL BUILDINGS.

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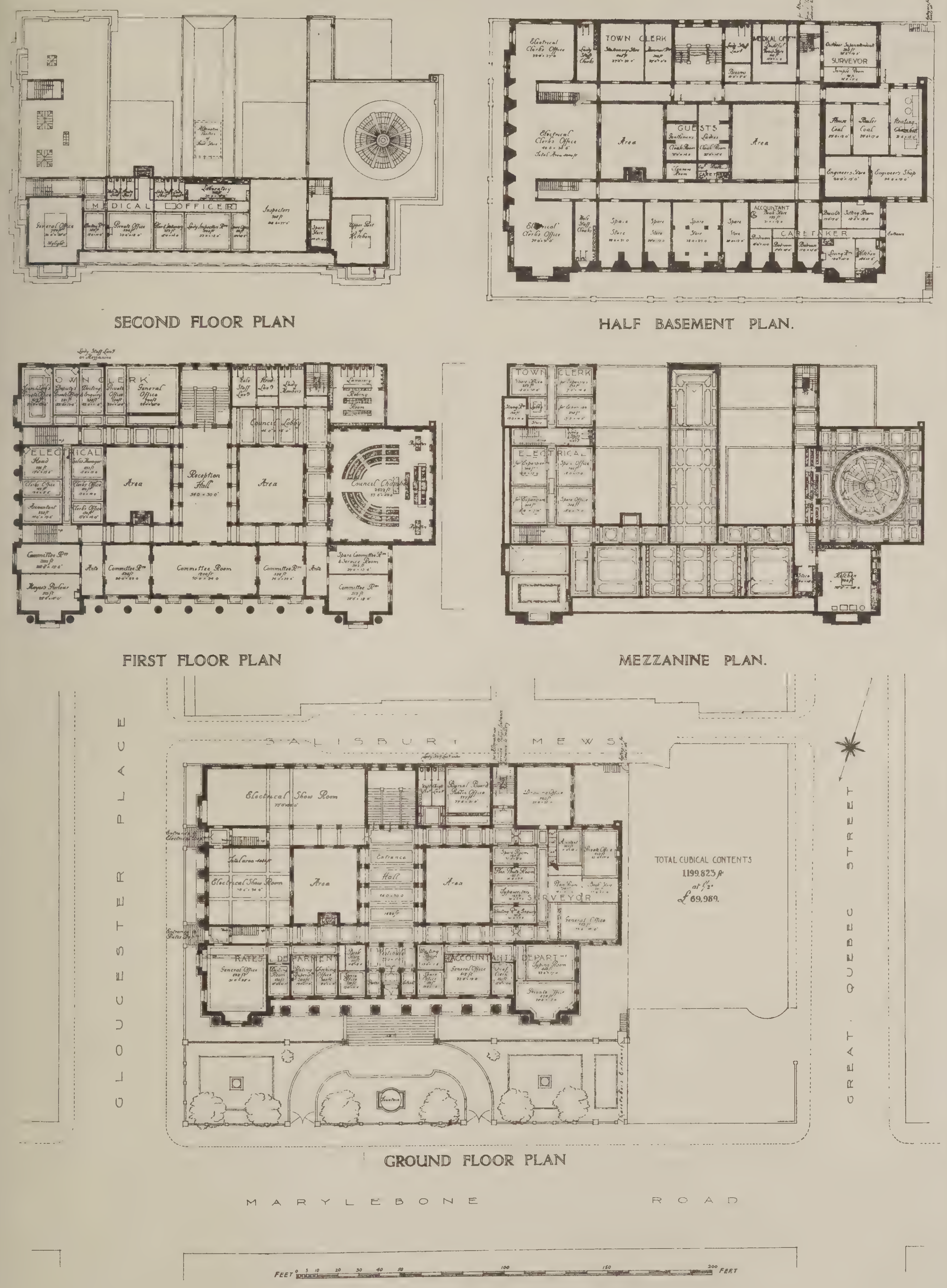

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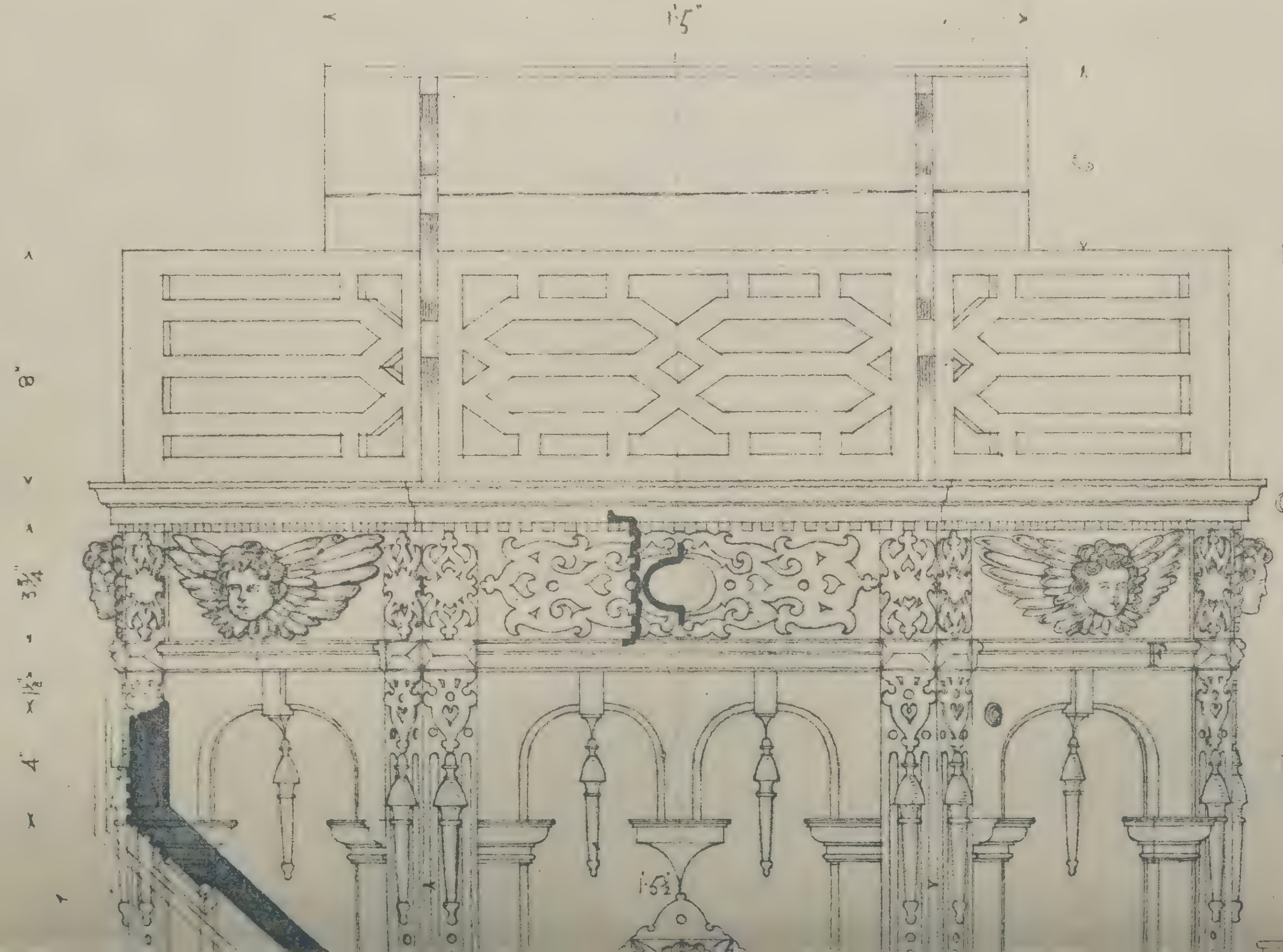
MARYLEBONE MUNICIPAL BUILDINGS.

Design by Messrs. EDWIN T. HALL and E. STANLEY HALL.

TRINITY HOVSE. NEWCASTLE ON TYNE.

PVLPIT IN CHAPEL. MEASVRED & DRAWN BY "ALPHA"

THE CHAPEL OF TRINITY HOVSE WAS BVILT IN 1636, AND ITS SIZE IS ABOVT 30'.0" × 15'.0".
THE INTERIOR WOODWORK IS IN OAK, THE DETAIL AND WORKMANSHIP BEING OF A VERY HIGH STANDARD.
THERE ARE TWO PVLPITS, THE ONE ILLVSTRATED IS THE LARGER, AND MORE INTERESTING IN DETAIL.
THE SCREEN AND BOX PEWS ARE OF SIMILAR DETAIL TO THE PULPIT,
THE WHOLE OF THE WOODWORK IS IN EXCELLENT CONDITION.



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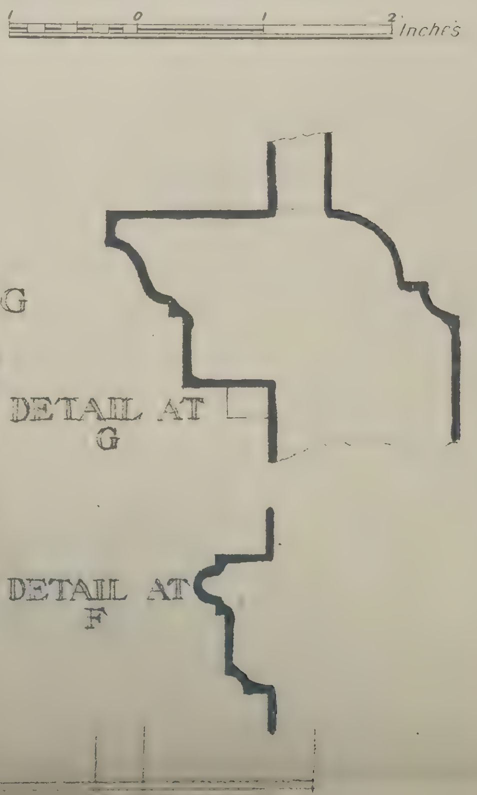

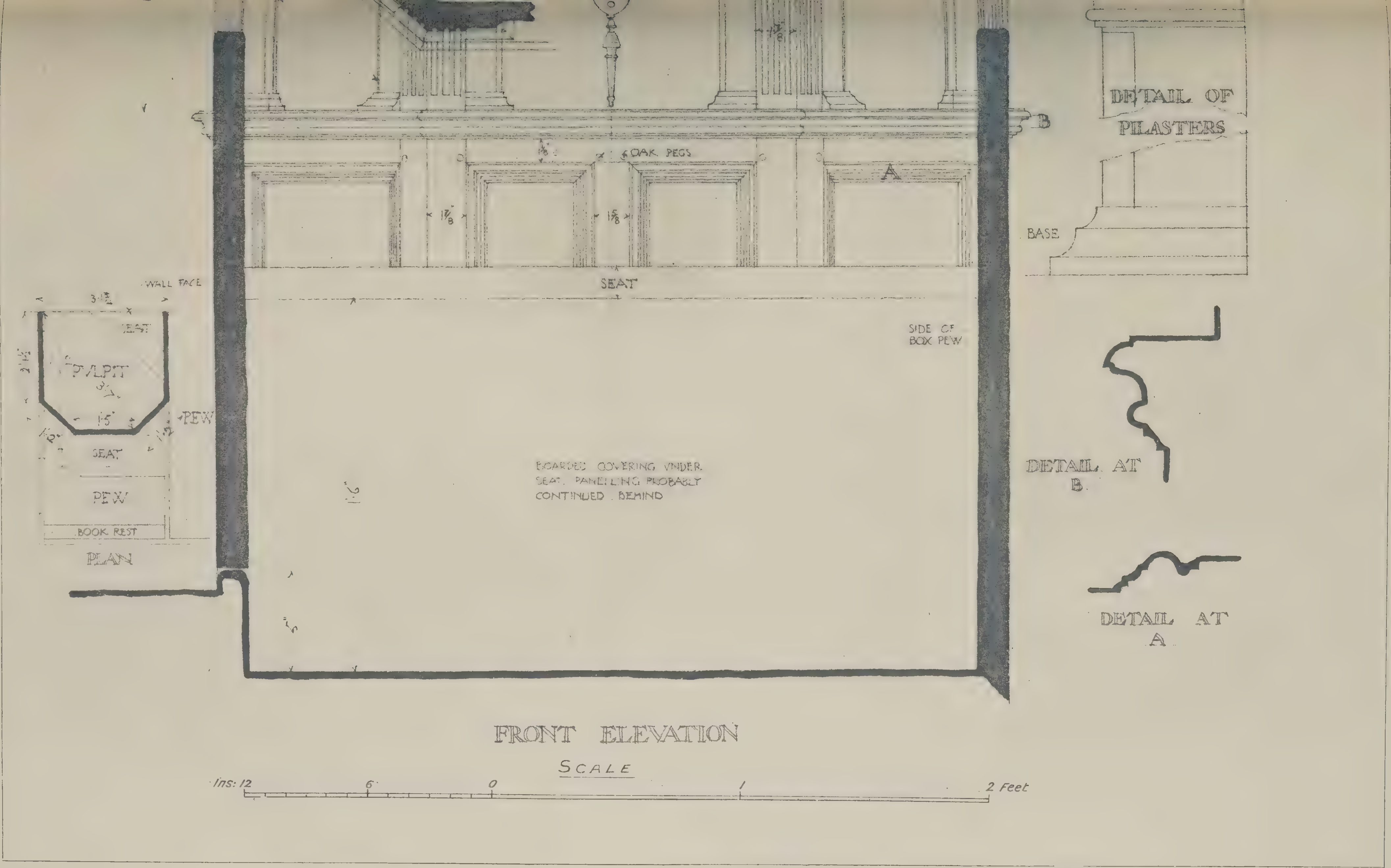

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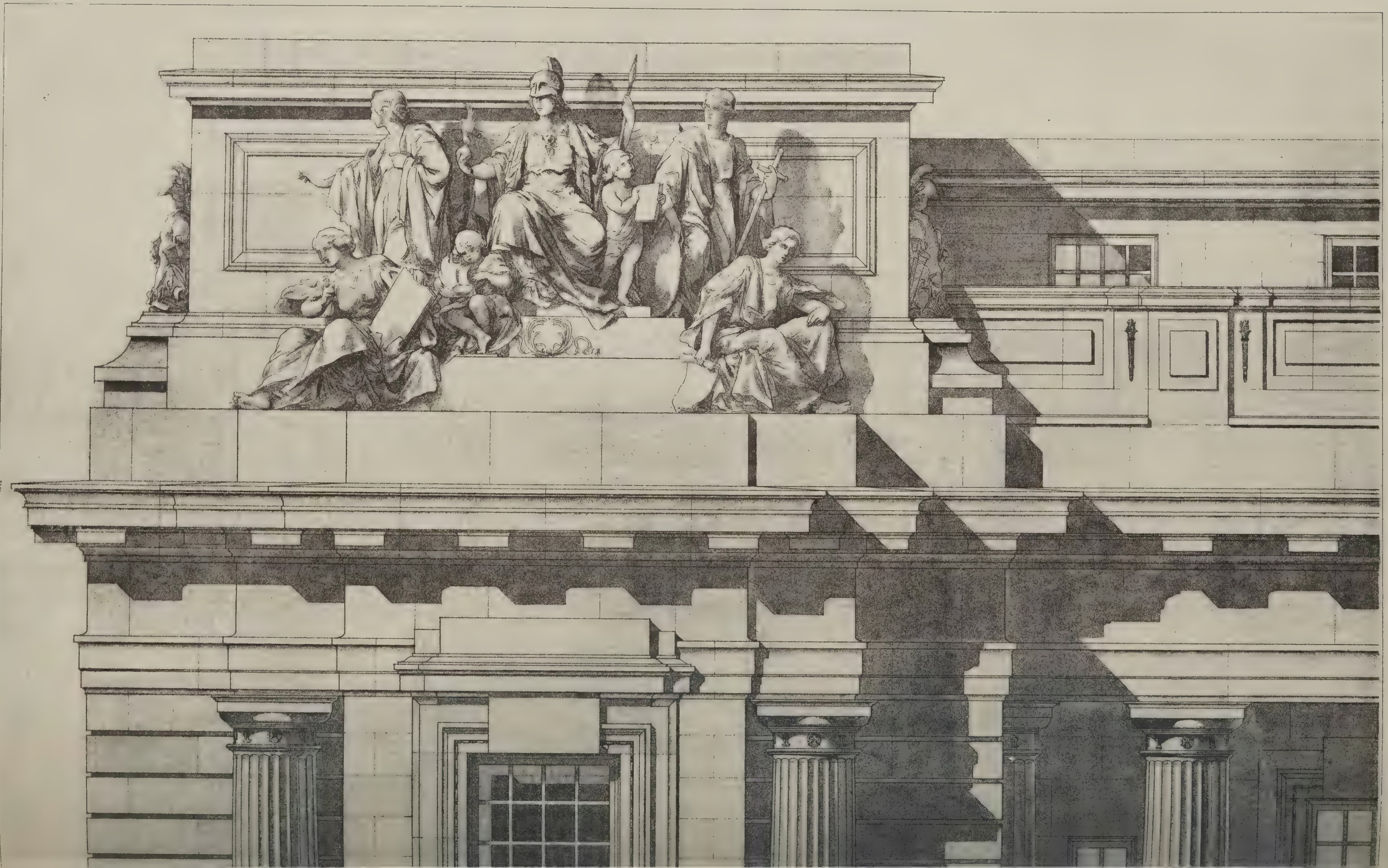
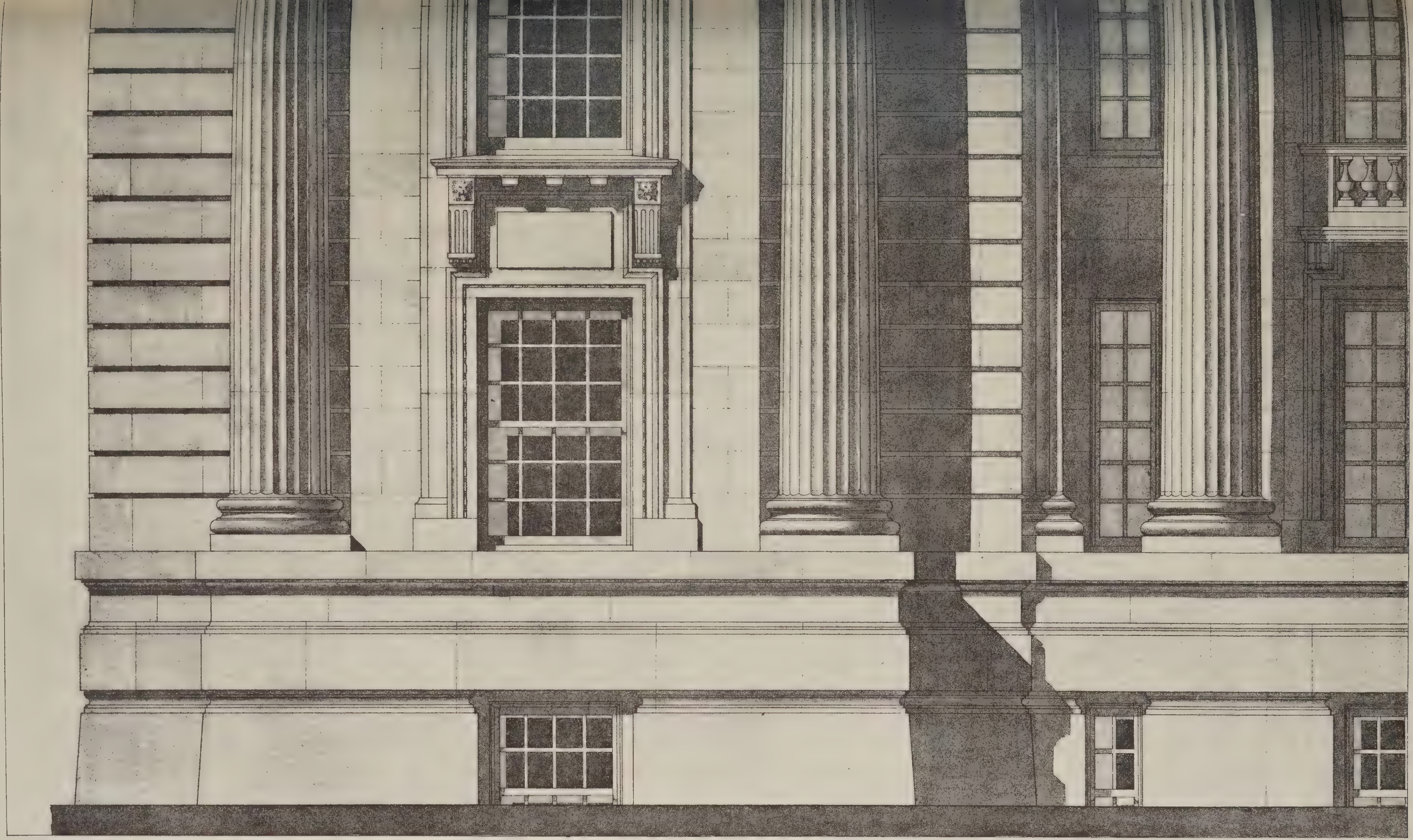
Prize Drawing by "Alpha."

"The Architect" Students' Sketching & Measuring Club





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MARYLEBONE MUNICIPAL BUILDINGS.

Design by Messrs. EDWIN T. HALL and E. STANLEY HALL.

The Architect.

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FORTHCOMING EVENTS.

Wednesday, January 3.

Cardiff, South Wales, and Monmouthshire Architectural Society : Paper on "Holidays in Normandy," by Mr. J. H. Phillips.

Monday, January 8.

Royal Institute of British Architects : Business Meeting and Special General Meeting at 8 p.m.

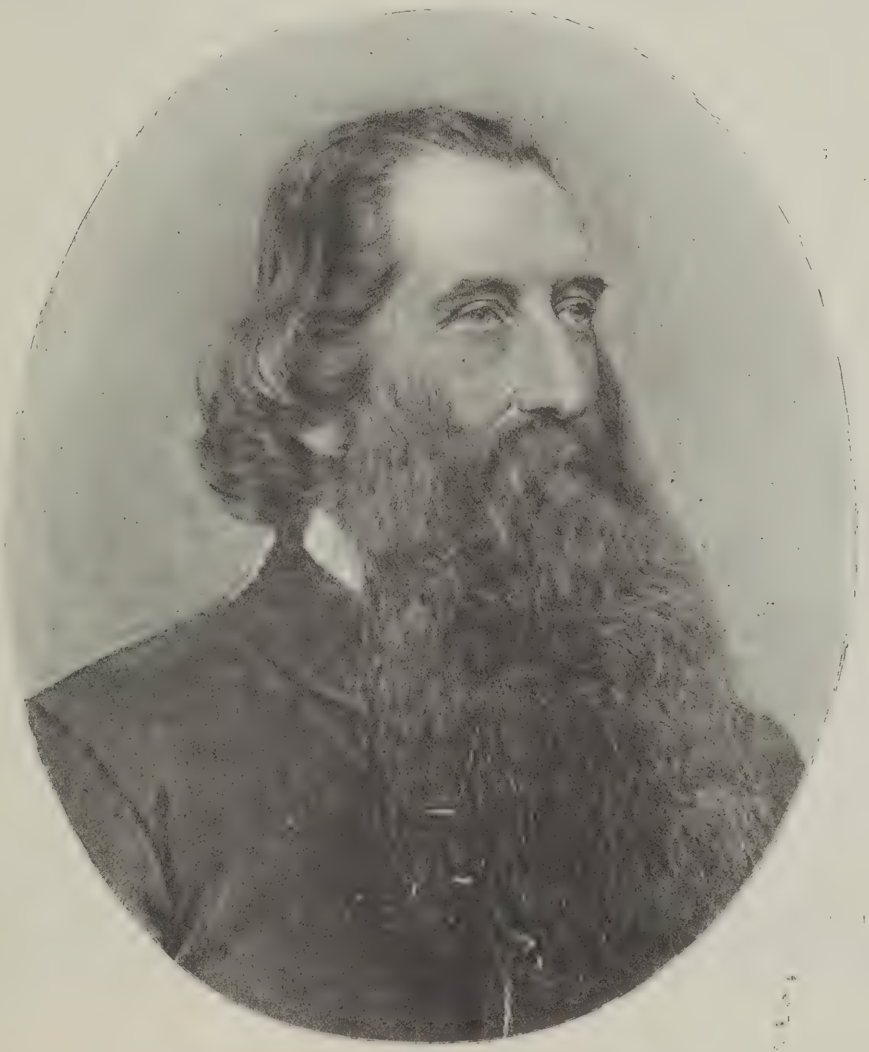
Liverpool Architectural Society : Paper on "Museums and Art Galleries," by Mr. Edwin T. Hall, at 6 p.m.

Tuesday, January 9.

Nottingham Architectural Society : Exhibition and Criticism of Designs, "A Detail of a Facade for Business Premises," at 8 p.m.

Wednesday, January 10.

Northern Architectural Association : Paper by Mr. T. M. Claque, at 7.30 p.m.



THE LATE MR. GILBERT WOOD.

Born April 20, 1833; died December 22, 1911.

Mr. Gilbert Wood, the founder of this Journal, was known personally to many of our readers and advertisers before he retired from business ten years ago. All who knew him then will remember his commanding presence, his sound knowledge of business, and his absolute justice and integrity. The slightest acquaintance with him compelled respect; and a more intimate knowledge inspired affection. A happy accident determined his choice of a career. He wrote a letter to the *Times* upon some topic of passing interest. The editor thought so well of it that he printed it as a leading article, and sent to Mr. Gilbert Wood the first money which he earned as a journalist. Mr. Gilbert Wood soon proved that his capacity for the business side of his profession was no less striking than his capacity for its literary side. In his early twenties he was in sole control of a large firm which printed a great number of newspapers. From his earliest youth, therefore, he was connected with printing, publishing, and journalism; and we can truly say without exaggeration that there was nothing about the business of producing a newspaper—from setting up the type to writing the leading articles and editing the paper—that he could not have done with his own hands and brain. During his life he was engaged in conducting journals and newspapers of many kinds; and no paper in which he was concerned ever failed to be a success under his management. This career of unbroken success is due not only to the fact that he possessed an intimate knowledge of all branches of his profession, but also by reason that his varied interests in many other spheres taught him that thorough knowledge of human nature which is the foundation of success in all walks of life. In the political world he was a strong Conservative. He had advocated the cause of Tariff Reform upon the public platform for thirty years. He was a fine public speaker, and his services to his party were so great that the late Lord Beaconsfield offered him a knighthood and a safe seat in Parliament, both of which were declined, for by him honours were not sought, and a busy journalistic life did not permit him to devote the time required by such additional work. In the religious world he was an elder of the English Presbyterian Church, to which body he rendered many valuable services; and for many years he was an earnest worker for the Sunday School Union. All those who were privileged to hear him talk of his past life in his latter years felt that here was a man who could have truly said of himself the words which Tennyson puts into the mouth of Ulysses:

> "Much have I seen and known; cities of men
> And manners, climates, councils, governments,
> Myself not least, but honour'd of them all."

Just ten years ago—the period at which our portrait was executed—a serious heart attack compelled Mr. Gilbert Wood to retire from the active management of this Journal. For seventeen years before that date his eldest surviving son, Mr. Percival A. Gilbert Wood, had been associated with him and his partner, Mr. Hobart, in the control of the business. For the last ten years Mr. P. A. Gilbert Wood has taken over the entire control. After the retirement of Mr. Gilbert Wood the paper was edited by Mr. Hobart till his death in 1908. The work of his successor, Mr. Farrow, is well known to and appreciated by all our readers. It must, indeed, be admitted that no light task was set to the responsible staff when, on Mr. Gilbert Wood's retirement, they were called upon to maintain his high standard of achievement. But the last ten years have shown, and we doubt not that the next ten years will show even more clearly, that this Journal is still inspired by the example and the memory of its founder—almost, if not quite, the last of the grand old men who adorned the journalistic world of the Victorian era.

To the Readers and Advertisers of this Journal.

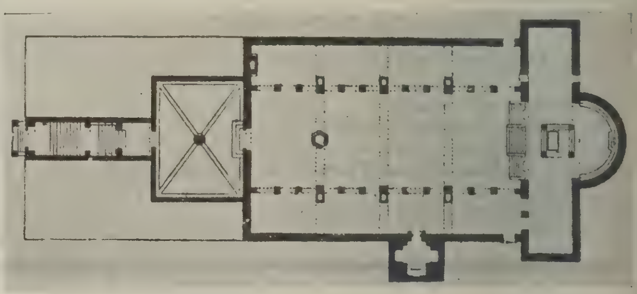
It is with sorrow that I have to announce that my father, Mr. Gilbert Wood, passed away on Friday morning last after some years of suffering. This Journal, which he founded and in which he took so much pride, he has committed to my care, and my constant endeavour will be to conduct it in the same straightforward manner that has characterised the past forty-four years of the paper's existence. Out of that forty-four years I have been associated with my father for twenty-seven years, and I ask the same generous treatment at your hands in future that was accorded in the past to my father, to Mr. Robert Hobart, and to myself. It is my intention, with the aid of the present editor, Mr. F. R. Farrow, F.R.I.B.A., to maintain a high ideal in the conduct of the paper, so that it may always be found helpful to the great profession typified by its name, fair and just in criticism, accurate and full in its news, and, in short, worthy in every way of the traditions of the past and of its honoured founder.—Yours faithfully,

Percival A. Gilbert Wood.
(Gilbert Wood, jun.)

EARLY ROMAN CHURCHES.

(*Concluded from last week.*)

St. Prassede, originally an early foundation, was rebuilt in its present form in the year 817, and possesses features unique amongst churches of this class—viz., a series of transverse arches thrown across nave and aisles. Piers dividing the ranges of columns into two or more groups have been already described at St. Clemente; in this example there are three such oblong piers on each side, but the long dimension of the pier is not, as elsewhere, in line with the columns, but set transversely to them and projects into the aisle, and from the piers spring the transverse arches referred to. This is a feature frequently met with in Romanesque churches, and it is by no means improbable that they are a later addition to the original scheme.

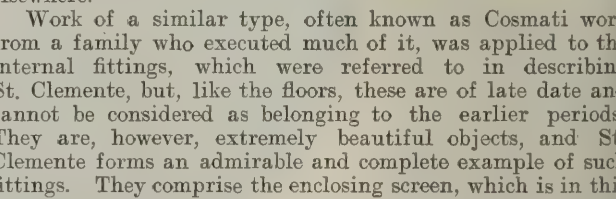


ROME.—PLAN OF ST. PRASSEDE.

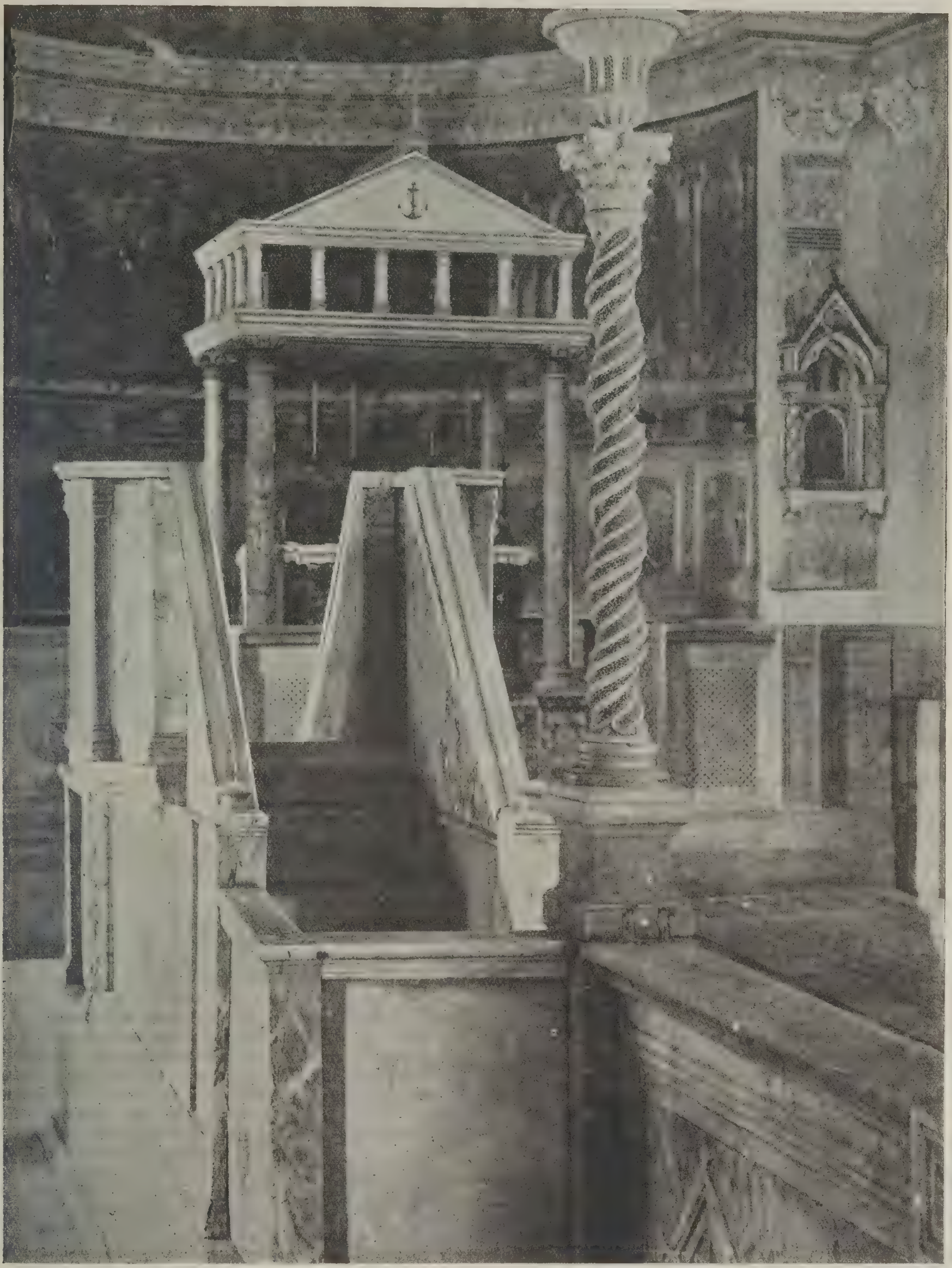
Mosaics played an important part in the internal decorative treatment of the basilican church. A mosaic treatment appears to have been regularly applied to the semi-dome of the apse and to the arch of triumph in front of it, and in some cases also to the side walls above the arcade.

Another important feature in the internal colour scheme was the floor. In the original buildings the floors were probably formed of coloured marbles laid in large pieces and disposed geometrically in the manner employed in Roman public buildings and known as opus sectile. This type of floor has been employed in the reconstructed church of St. Paul-without-the-Walls, and a splendid Roman example remains in the Pantheon. Marble mosaic also was probably used in some examples. But the majority of the pavements which are now to be seen in these basilicas are of much later date and are formed of opus Alexandrinum. In this style of floor large slabs (usually circles of rich coloured marble or porphyry) form the central features of the design, and these are surrounded with bands made up of small pieces of different coloured marbles arranged in pattern, alternating with broad bands of white marble, and producing an extremely rich and harmonious floor. Splendid examples occur at St. Maria in Trastevere, St. Maria Maggiore, and elsewhere.

Work of a similar type, often known as Cosmati work from a family who executed much of it, was applied to the internal fittings, which were referred to in describing St. Clemente, but, like the floors, these are of late date and cannot be considered as belonging to the earlier periods. They are, however, extremely beautiful objects, and St. Clemente forms an admirable and complete example of such fittings. They comprise the enclosing screen, which is in this example complete, the two ambones, reached by short flights of stairs from within the screen, and a candelabrum, in all of which work of this type occurs. There is also an example of the ciborium, which was erected over the altar and consisted of four columns, usually carrying an entablature or merely a light architrave, above which occur on each side a row of small columns supporting a canopy. At St. Lorenzo and elsewhere there is a second tier of these small shafts arranged in an octagonal plan, and the canopy is octagonal and is surmounted by a lantern-like feature, also octagonal, and carried by small shafts. St. Lorenzo also offers a beauti-



ROME.—PLAN OF ST. LORENZO.



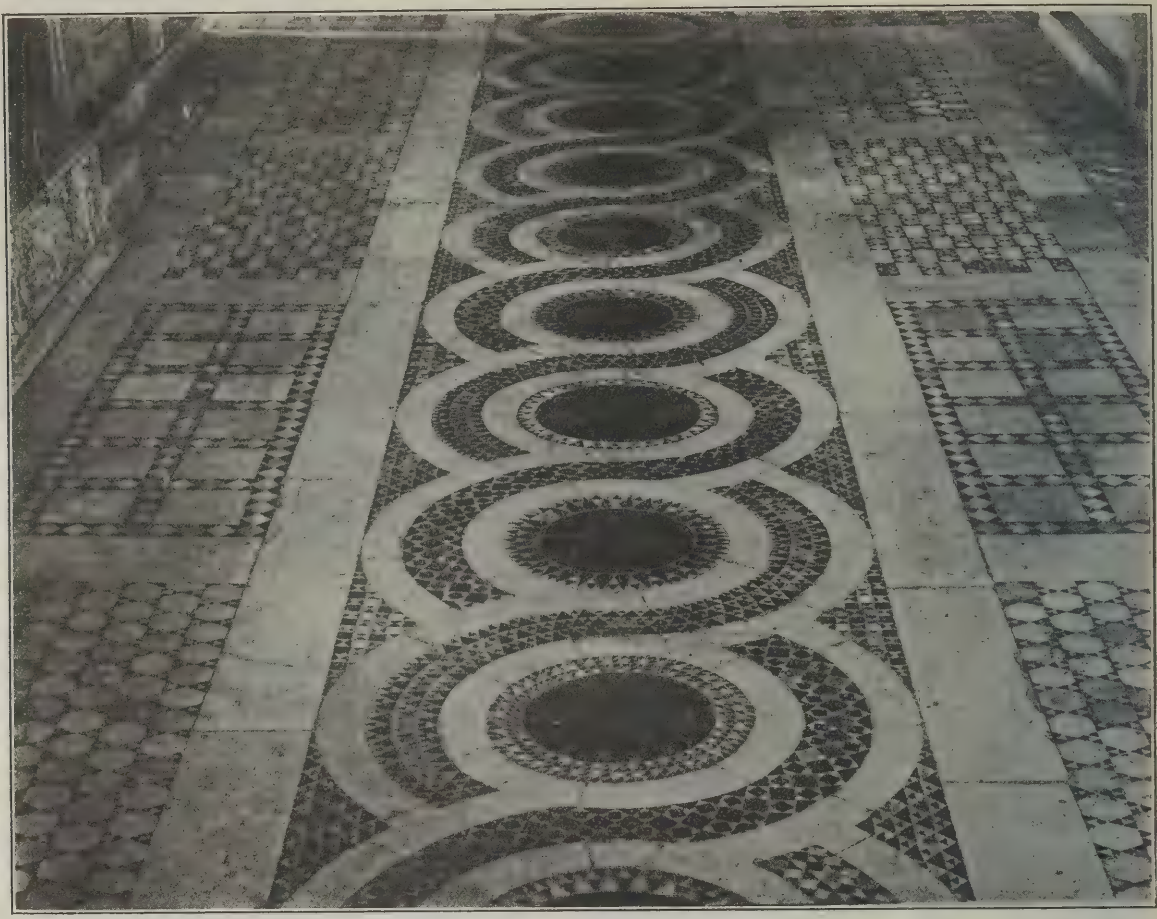
ST. CLEMENTE ROME

ful example of a screen and throne of this character, and also of an ambone, which is placed in the nave.

Another feature that cannot be altogether overlooked, although it did not belong to the early foundation, is the cloisters, which formed part of the aggregation of monastic and other buildings which by degrees were erected in connection with many of the Roman basilicas. Many of these are large and contain some beautiful work. They consist of a large central area, which is open, surrounded by a walk on all sides; this is covered by a sloping roof the eaves of which, near the inner garden, are supported on a colonnade formed of small columns sometimes single, sometimes in pairs, carrying an arcade. The columns are many of them twisted spirally or fluted, and in some examples have bands of mosaic work let into them. The cloisters of the Lateran form a beautiful example. Not only are many of the shafts treated with lines of mosaic, but above the arcade on the outer face there is first a narrow mosaic band or deep frieze treated with a kind of ornament, but with squares and circles alternating.

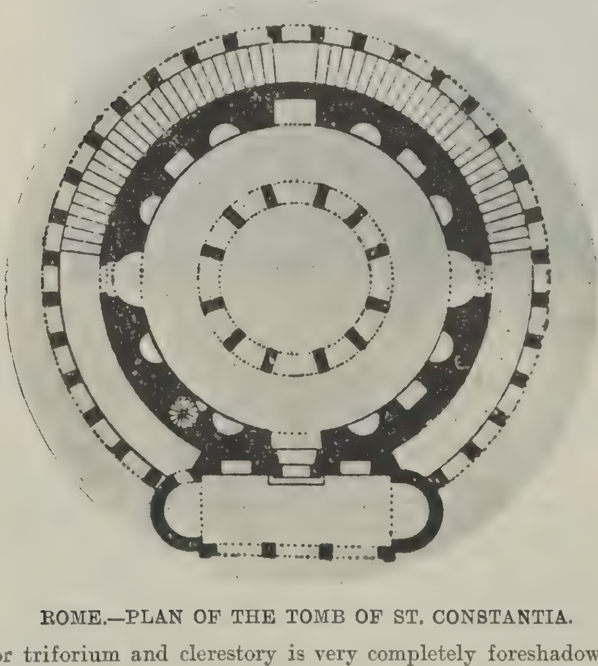
In this short account of the basilicas an attempt has been made to suggest the general arrangements of this class of buildings and the principal variations that are found in their general plan. I claimed for them an important place in architectural history, and do so not merely on the ground of their size or richness or beauty, but also because of the influence they had on later Christian architecture.

In many Romanesque buildings this is very notable, and in later mediæval buildings, though less apparent, it is very real. It is true that in many respects the system of construction was superseded, and also the method of enrichment and the manner in which the supports are distributed and the character of the supports is also changed, but the basilica to a great extent fixed the type of plan that was and still



ST. CLEMENTE, ROME.—FLOOR OF CHOIR LOOKING TOWARDS ATRIUM.

is used not exclusively, but for the great majority of Christian churches in Western Europe. The nave with its single and double aisles and the transepts are found very usually in a great majority of later churches. The eastern projection is of much greater importance than the Roman apse, in many cases rivalling the nave in extent; but, except in our own country, the apse itself is a very usual eastern termination; even the extended choir finds a prototype almost by a kind of chance in that of St. Lorenzo. The internal triple division of the nave into an arcade, gallery or triforium and clerestory is very completely foreshadowed in such a church as St. Agnes. Although the internal effect and the system of construction of a Roman basilica and a Gothic church are widely different, they have much in common in the actual disposition of the parts.

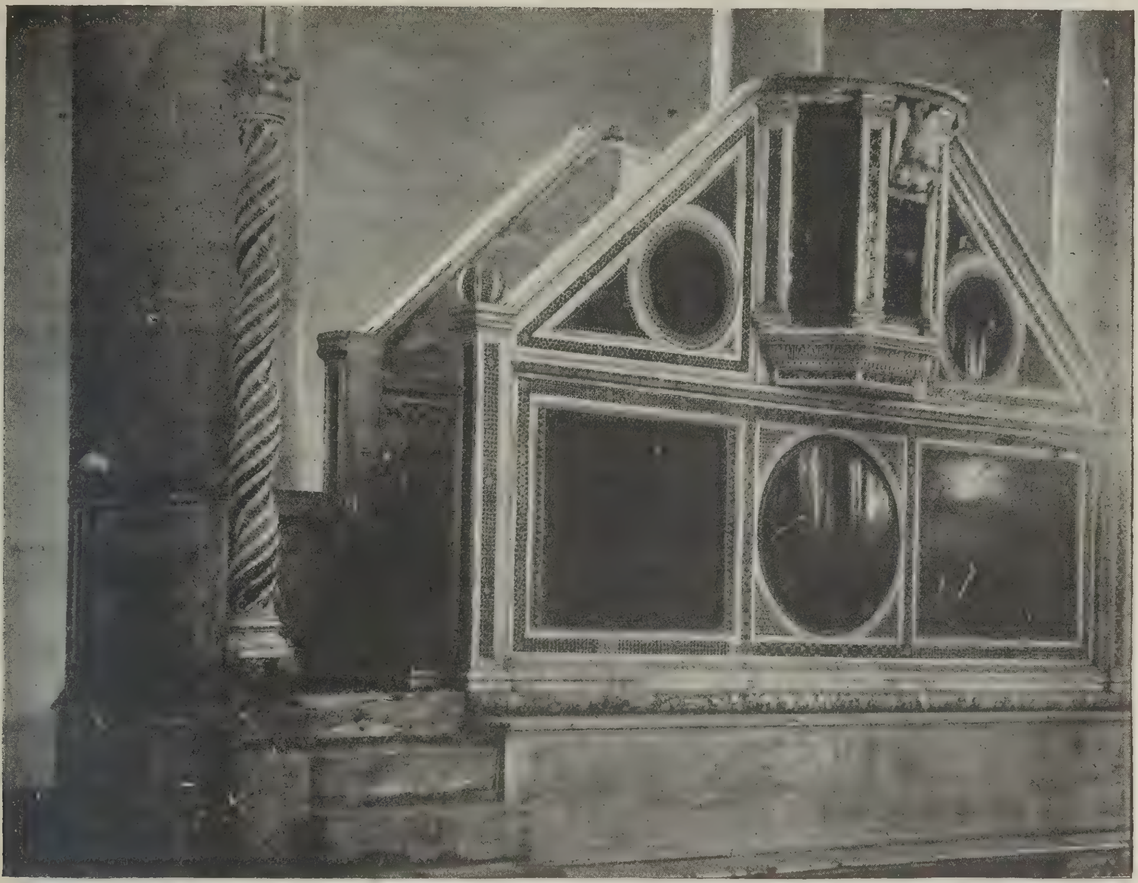


ROME.—PLAN OF THE TOMB OF ST. CONSTANTIA.

Basilicas were not, however, the only sacred edifices that were erected in the early days of Christianity in Rome, and it is necessary to refer to buildings having an entirely different type of plan, one that is based on a circle or in some cases on a polygon.

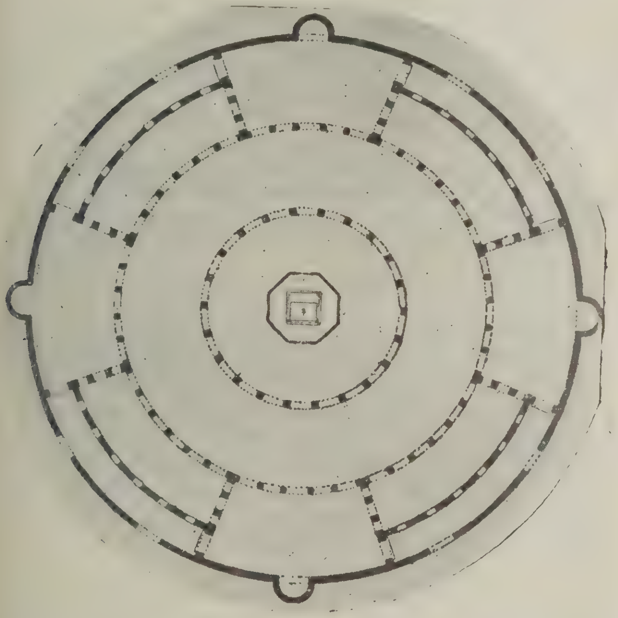
Buildings having a plan of this type had been repeatedly used for memorial tombs by Roman emperors and patricians. One of the earliest and best preserved Christian buildings of this type was originally erected as a tomb for Constantia by her father the Emperor Constantine. This is outside the walls near the church of St. Agnes, and consists of a central circular space, about 35 feet in diameter, surrounded by an aisle; between the two are twelve pairs of columns, the coupled columns being employed in this case to give a wide base to the arcade carrying the upper wall, which was 4 feet thick. This is the earliest existing example of such an arrangement. The spacing of the columns is not uniform, the arches on the four cardinal openings being wider and higher than the others. The aisle is enclosed by a massive wall, in which a series of recesses are formed alternately square and apsidal, and in the square recess directly opposite the entrance stood the sarcophagus of the princess. The aisle is covered by a semicircular vault, which still retains to a great extent the original mosaic decoration. It was entered through a large narthex, having an apse at each end. This building was externally plain, and both the dome and the aisle roof were covered by low-pitched timber roofs; the system of construction is akin to that of the late Imperial buildings rather than to that used for the basilicas.

The other early circular building in Rome—St. Stefano Rotondo—which is ascribed to the latter part of the fifth century, is very much larger and belongs to the basilican type of construction. The central space is enclosed by twenty-two Ionic columns carrying architraves and supporting a circular drum; at some subsequent date this was divided by a cross wall resting on two lofty Corinthian columns and two piers, the latter built so as to include two of the original columns, and from these supports three large arches rise, which carry above them a wall carried up to the flat ceiling. Round the central space runs a double aisle which was originally separated by another range of columns not continuous, but subdivided by eight piers into groups of alternately four columns with Corinthian capitals and five



ST. LORENZO, ROME.

columns with Ionic capitals, the latter being somewhat less lofty. Both kinds are surmounted by dosserets and carry an arcade. For the most part the intercolumniations are now filled in with a wall. The outer aisle was enclosed by a wall and was subdivided, but the original disposition cannot be ascertained with any certainty owing to the numerous alterations and its ruinous state.



ROME.—PLAN OF ST. STEFANO ROTONDO.

An example of an early polygonal building in Rome is the baptistery of the Lateran, originally erected by Constantine, but in its present state little but the general form represents the original arrangement of the building. Originally it had a central space about 30 feet in diameter, in which was a basin of porphyry. This space was octagonal, and at each angle was a porphyry column; the columns carried a marble entablature which supported a gilded dome, which survived till about 800. The surrounding aisle was also octagonal, and was enclosed by thin walls and probably covered by a wooden roof at first, though afterwards vaulted. In later times the building has been raised, lighter columns placed above the lower ones, and a gallery formed over the aisle, so that the internal effect has been completely changed.

This type of building persisted in Italy for a long period for baptisteries, which in the early days of the Church were always distinct from the church itself, and were usually associated with the cathedral church of each district, and such examples as the baptisteries of Pisa and Florence will readily suggest themselves among later examples; but though one cannot illustrate this type of building in its original condition from Rome itself, one may once again turn to Ravenna for an example which, though not an aisled example, is octagonal in plan and retains the central basin and the original rich decorative treatment of the walls in a remarkable state of preservation.

VICTORIA AND ALBERT MUSEUM.

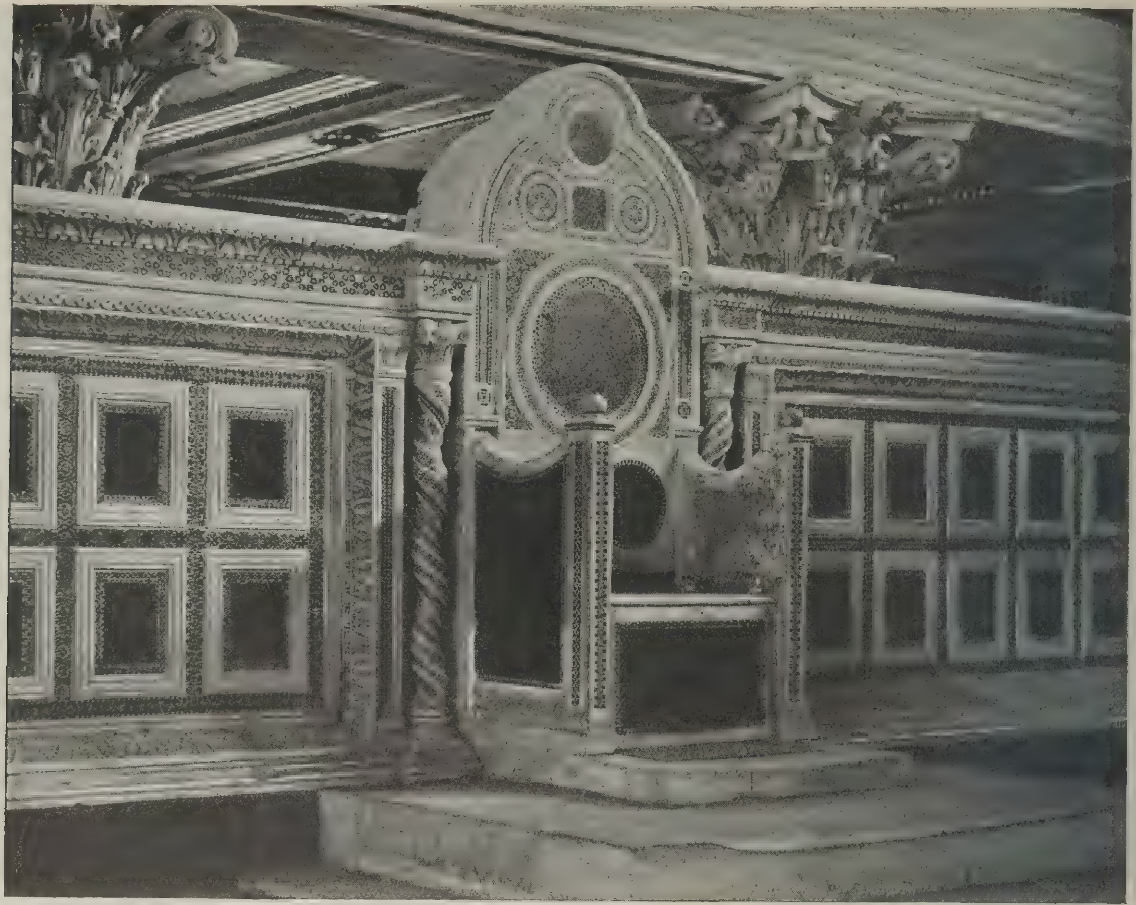
THE following are among the more important examples of old English furniture which have been recently acquired by the Victoria and Albert Museum.

To the collection of English Gothic woodwork has been added a portion of a rood screen of oak, still bearing traces of its original colour. It dates from the late fourteenth or early fifteenth century, and the western front of the screen, of which this portion formed the eastern, is still in situ in Tilbrook Church, Bedfordshire.

The examples of Tudor furniture in Room 6 have been increased by the acquisition of four finely carved bed-posts of the time of Henry VIII., and those of the Elizabethan period in Room 52 by a writing-desk elaborately inlaid with architectural designs of the type commonly known as "Nonesuch," from their resemblance to the façade of the palace of that name built by Henry VIII.

The additions to the walnut furniture of the seventeenth century comprise a Cromwellian armchair, several Charles II. chairs, including one very elaborate example, and a chair of rare form intended for the use of a child (Room 54).

Several important examples have been added to the collection of marquetry furniture of the time of William and Mary in Room 55. Among these is a chest of drawers, with cabinet above, dated 1688.



ST. LORENZO, ROME.

To about 1700 may be attributed a recently acquired complete upholstered bedstead, with curtains and canopy, from Welford-on-Avon, and a corner cupboard or buffet of carved pine bearing the arms of Hicks, lately removed from an old house in Bristol. The latter of these two objects is to be seen in Room 56; the former is being prepared for exhibition.

To the collection of eighteenth century clocks in Rooms 55 and 56 have been added two so-called "grandfather" clocks in dark green English lacquer, both bought in Spain, one of which was given to the Museum by Mr. L. Harris; a similar tall case clock, of later date, in inlaid mahogany of Lancashire make, given by Mr. Emile S. Mond; and a bracket clock of mahogany and olive wood.

The rare furniture of the early Georgian period, previously almost unrepresented in the Museum, is now illustated by a choice carved and gilt mirror, the gift of Sir Edward Stern. This mirror closely follows the style of the well-known architect and designer, William Kent, and was probably designed by him for Frederick, Prince of Wales. It is exhibited in Room 56.

The chief addition to the furniture in the Chippendale manner consists of an historical chair, being the President's chair of Lyons Inn, one of the old Inns of Chancery, the buildings of which dated from the early part of the eighteenth century, and were destroyed in 1862. This important example of mid-eighteenth century woodwork will shortly be placed on exhibition.

ILLUSTRATIONS.

PULPIT, HOLY TRINITY CHURCH, LEEDS.

THIS pulpit is an interesting example of eighteenth century woodwork. The sounding board is a fine piece of work, the curved portions on the sides producing a pleasing effect. The underside of it is overlaid with carefully selected hard woods. The chief rays are in a yellow wood, and show up well on a dark ground. The mouldings of the pulpit are enriched, as are those of the sounding-board. No two of the carved panels are alike. The square panels in the front and sides are overlaid like the underside of the sounding-board. The base and steps to the pulpit are modern. The former does not show very much as it is hidden by the chancel rail, which returns round the pulpit.

MODERN BUCKINGHAMSHIRE HOUSES.

IN our issue of December 1 we gave a view of the exterior of "Uplands," Beaconsfield, together with a description. We now have the pleasure of publishing interior views of this house, of which Messrs. Johnson & Boddy are the architects.

ST. DAVID'S BUILDINGS, ALEXANDRIA.
TAWA'S BUILDINGS, ALEXANDRIA.

THESE photographs illustrate modern English work in Egypt, of which Mr. Robert Williams, F.R.I.B.A., is the architect.

The suggestion of Mr. E. M. Gibbs, F.R.I.B.A., for a viaduct and two-storeyed markets on the line of Sheffield's long-delayed new street from the Great Central Station to the Haymarket is one of those clever ideas that astonish by their simplicity. We fear that the City Council are at present too much engaged in squabbling about the new street for any right decision to be made just yet. Perhaps the contending parties may some day have the good sense to adopt Mr. Gibbs' proposal as a *via media.*

We have received a copy of a photogravure from a drawing by Mr. Leonard Patten, showing the east end of the interior of the Chapel of Henry VII. at Westminster, which, whilst charming in its treatment of light and shade, is wonderfully truthful in its presentation of the intricate detail of the architecture.

In the *Art Journal* for this month is an architectural article in the shape of an illustrated description of Amerongen, the seat of the first Earl of Athlone. Another interesting article is that on "Late Seventeenth Century Work at Drayton," with reference to furniture of that date. The series of papers on "Tapestry weaving in England" concludes the history of the Mortlake manufactory.

THE SOCIETY OF ARCHITECTS.*

(Concluded from last week.)

HERE is a possibility, it must be admitted, that these remains (which can hardly be called ruins, being little more an rock-cut foundations) were of post-Roman origin, with e exception of the colossal statue already mentioned; for en after the fall of Rome, Alexandria retained a great nount of its importance, rivalling Constantinople for a nsiderable period as the centre of the Christian faith—as still is the metropolis, if there be one, of the Coptic branch ereof. Thus the mere presence of Roman bricks regularly ilt up in walls, and of Roman masonry, can be taken as finite evidence only that the work was *not* carried out *before* e advent of the Romans. On the other hand, such evidence there is of architectural work during the period known the Byzantine, is wholly to the effect that Alexandria was en, in an architectural sense, completely dominated by e great city on the Bosphorus. This is seen in the museum, here there are several fine Byzantine columns and isolated pitals, equal in all respects to those of Constantinople, avenna, and Venice, and identical in spirit with such as ould be found in either of those acknowledged Byzantine ntres, of any date between the sixth and eleventh centuries the Christian era. There are, for instance, Ionic columns, ith Byzantine dosserets resting on their capitals, carved ith the Maltese Cross; but with the carving raised above e general surface and not sunk beneath it, as is almost variable in Byzantine work elsewhere; but in the capitals emselves the dart replaces the tongue, and the volutes e crude. Perhaps—it is only a suggestion, with no proof support it—these capitals belonged to one of the earlier hristian buildings, of a date even earlier than that of e foundation of Contantinople; for it is difficult to believe at the Byzantine style sprang into existence, without olution by gradual degrees, complete and perfect, with the ilding of that city and the erection of its great domed urches. And Alexandria, alone of all the great towns of e East, can reasonably be supposed to have been the place here any such gradual change took place—subject, as it as, to many influences itself.

One capital in the museum alone is indicative of Roman irit. It is coarsely carved, a crude attempt at the Composite capital, as it might have been evolved from the typical lexandrian capital, with voluted leaves at the angles, and s echinus has darts cut between the eggs instead of tongues. his, too, may indicate one of the many influences at work t of which Byzantine ornament was developed gradually.

That it was fully evolved at last, and used exactly as elsehere, is shown beyond possibility of dispute by the fine asket capitals of typical form of which the museum contains everal examples, with all carved effect obtained by sinking e background below the retained general surface, and with anels worked on the principal faces of the capitals, as it ere, let into the basket work, and enriched with stiffly esigned foliage.

But such work as this, architecturally perfect as it is, may ell have been imported, in inspiration at least. That for hich Alexandria stands alone is of earlier date and aracter, late Greek or early Roman as some might call it, ut in greater truth Alexandrian, typified by a form of orinthian capital practically unknown elsewhere, but ommon in the Egyptian port, as the numerous examples the museum indicate without doubt. It is, too, one of e most beautiful forms of capital known, beyond the beauty f that generally known as the Corinthian—with little vidence that it was ever used at Corinth—which it resembles all respects except the use of leaf volutes at the angles place of tendrils. Thus there surely is at least a doubt hether Alexandria was not the real home of the order. If , the name of Alexandrian should be given to it in place f Corinthian, and the Alexandrian form should be accepted s the general type. At least its recognition, and its use ith such modifications as might be called for under individual circumstances, is fully justified in modern work which pes the Classic.

Mr. R. G. Lovell, in proposing a vote of thanks, said hat the important discoveries which Mr. Middleton had nade showed how necessary it was for them to keep their eyes pen wherever they went. He had himself passed through Alexandria; but beyond the extremely interesting catacomb o which Mr. Middleton had referred he was not at that ime aware that there was anything of architectural interest in the place. He did not even know that there was a museum until he heard it that evening. The lecturer's deductions with regard to the home of the Corintian order seemed to be exceedingly well founded. The evidence of Egyptian occupation was to be traced a good deal further up the Nile than Alexandria, as he remembered making a sketch of an Ionic capital at Luxor. They had heard something entirely new, and which would strike the archæological world with even more force when it was seen in its true perspective. He expressed his admiration for Mr. Middleton, who at the time was travelling in pursuit of health, for his work in gathering the materials for his lecture.

Mr. H. Freyberg, F.S.I., in seconding, expressed his appreciation of the lecture and the way in which it had been presented to them. Scientists for the most part were so absorbed in their matter that they ignored the fallibilities of their audience. He had never had the opportunity of visiting any part of Egypt, but there was one question which arose in his mind, and that was as to what had become of the remainder of the buildings of which vestiges had been found, and which, if existing at the present time, would be remarkable throughout the whole world. The answer to the question, he thought, might be found in the history of places like Venice, where, at the conclusion of a successful war, the conquerors made their opponents throw in, in addition to the war indemnity, certain shafts of precious marbles, which were carried to the home of the victors. If, therefore, shafts could be taken, people with the tastes of the Venetians were not likely to leave behind the capitals, and in giving the Venetians credit for the west front of St. Mark's they were probably giving them credit for the brains and artistic efforts of a people in far distant countries. No one, he thought, who designed the façade in question on paper would have put in so many shafts and so many capitals, and it was more likely that they were added as they were secured from vanquished foes.

Mr. Robert W. Carden said he was waiting to hear Mr. Middleton refer to the architect who was supposed to have laid out the city of Alexandria on behalf of Alexander the Great. It was extremely hard (although quite usual) to find that his name was left out. So far as he knew the architect was Dinocrates, and the city was founded, he believed. in 332 B.C. The employment of Dinocrates strengthened Mr. Middleton's argument, and the sketch of the Ionic capital, followed by a photograph of the capital from the Temple of Diana at Ephesus, seemed to have some bearing upon the point.

Mr. Geo. E. Bond (President), in putting the vote of thanks, associated himself with all that had been said. Mr. Middleton had made a point of the fact that Alexandria, from an architectural point of view, had been neglected, and he entirely agreed with him. But he thought the reason was that Alexandria had other claims to distinction which were overwhelmingly obvious and to a great extent overshadowed any claim it might have to be an architectural centre. Alexandria during the Ptolemaic period developed the exact sciences and did so much for the establishment and development of what they might call modern civilisation that they were now feeling its effects and were enjoying its results. When they considered the great names which were household words with them, such as Euclid, Archimedes, Hippocrates, and Ptolemy, there appeared to be some reason for people not taking so much interest in it from an architectural point of view. Alexandria was founded just at the time when the imaginative Greek philosophy, which culminated in Plato, was giving way to the more practical and rising philosophy of his great pupil, Aristotle. At the present time they were reaping the benefit and following closely in the footsteps of the scientists, who to a great extent owed their fame to the great museum founded by the second Ptolemy, and to the great library, the collection of which was initiated by the founder of the dynasty. Alexandria has always been noted for its great museum and its great library, both of which had passed away years ago.

A hearty vote of thanks was then accorded to Mr. Middleton.

Mr. G. A. T. Middleton, A.R.I.B.A., in reply expressed his thanks for the way in which his remarks had been accepted, and said Mr. Bond was very likely right as to how it had come about that Alexandria had been thought more of from another point of view than that of architecture. Mr. Freyberg's suggestion with regard to the disappearance of the major portion of what must at one time have been a very fine city was also probable, although it was only surmise. They knew that Alexandria was the centre of a most extraordinary contest between the Christians and Pagans, leading to fight after fight, and eventually the conquering Christians destroyed all evidence of the previous Pagan religion, and so the whole of the great city of Alexandria perished, swept away by fire after fire. The discoveries made in recent years had only come to light through the reclaiming of the foreshore. It was almost incredible that a curator of a museum had placed things of great archæological interest in his museum without letting Europe know. One would have thought that a French curator would at least have notified Paris, and thus ensured its report throughout the civilised world. There was not a word on the labels of any one of the remains in the Alexandrian museum as to where it was found or its probable date. He had not intended to imply that the arch was unknown to the Greeks or the Egyptians, but it was exceedingly rare, and he did not know of a case of a Greek capital being used in connection with the arch, although there was a strong suggestion of it having been used at Alexandria.

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* A Paper on "Alexandria: its Place in Architectural History," ead by Mr. G. A. T. Middleton on December 14.

The proceedings then terminated.

NOTTINGHAM ARCHITECTURAL SOCIETY.

A GENERAL meeting of this Society was held on Tuesday, December 12, at their rooms.

Mr. L. Y. Harris was elected an Associate.

Other business being disposed of, Mr. W. H. Taylor, Fellow of the Surveyors' Institution, Licentiate of the Royal Institute and Barrister-at-Law, read the following paper on "Some Notes on the Law relating to Building Schemes":—

There are several factors at work at the present time which may eventually give an impetus to the development of land for building purposes, namely,

1. The Finance Acts of recent years.
2. The Housing and Town Planning Act, 1909.
3. The Garden City movement,

in districts where the balance between supply and demand is favourable.

And although the second and third of these factors will doubtless tend towards the production of more comprehensive schemes in the future than have been projected in the past, owing to certain restrictions being removed which hitherto have retarded the work of development, yet I think architects and surveyors in whose hands the actual organisation of the work of development will lie may possibly be in some danger of overlooking the fact, that notwithstanding that the conditions under which development will take place are changing, yet the law relating thereto is in many directions stationary, and more particularly on points which have a deterrent and hampering effect.

The broad general principles of the law affecting development schemes are quite well known and understood. It is when one descends to individual cases that one not infrequently finds these general principles difficult to apply, and also that they are often of a seemingly hampering and vexatious character, restricting the natural rights of the owner and circumscribing the range of the designer's scope; and when one is confronted with such cases one is tempted to a feeling of outraged liberty, forgetting that what appears to be a hardship on the individual is generally for the benefit of the community.

I propose to put before you a few points in relation to development schemes and the erection of buildings which have often been a source of trouble to the architect in the past and most of which will again and again turn up in the future, despite the trend in modern methods of development and building and in legislation relating thereto, more particularly because I think if these points were kept to the front in the pigeon-holes of an architect's memory, both he and his client would be saved much trouble and annoyance.

Speaking for myself, I think one is apt to be so obsessed with the general lay-out of the work in hand as to overlook the small points which not infrequently render the whole scheme abortive, or at any rate involve an entire recasting after much work has been done and time spent.

These points may be considered under three heads, viz.:—

1. Laying out new streets.
2. Building lines.
3. Air space.

1. *Laying Out New Streets.*

Where land is brought into the market and laid out in plots for building purposes it may or may not be necessary to form new roadways where never before the public had any right of passage, but it would be safe to say that in every case there exists on or adjoining some part of the land an existing roadway used by the public: such roadway may be "a street," in the common or garden meaning of the term, or a main turnpike road, a narrow country lane, or even a mere occupation road: and, generally speaking, any such road affords building frontage of which the owner is not slow to avail himself, and is consequently looked upon as an advantage, when in fact it may turn out to be a source of trouble and expense, for when buildings come to be erected abutting on such old roadway the owner and his architect are often confronted with an objection by the local authority to the intended use of the frontage on the score of turning the old roadway into a "new street," which new street does not comply to the local regulations as to width and construction, &c.

This question, as to when an old roadway becomes a "new street," has given rise to a great deal of litigation, all of which seems to me to have ended with no satisfactory results, for one cannot even now say with any degree of certainty when an old lane becomes a "new street."

Barton *v.* Eccles Local Board was for a long time the leading case on the point, and seemed to establish the rule that an old highway repairable by the inhabitants at large became a "new street" within the meaning of the Public Health Acts when buildings were erected along it: so that where local by-laws required new streets to be 36 feet wide and building operations were commenced along a road, say 24 feet wide, the owner must throw sufficient land into the road to make up the width to 36 feet and form and make up the added portion in accordance with local regulations but, in effect, this case left the question as one of fact to be decided in each instance by the local bench of magistrates.

Following this, in several cases magistrates convicted owners of not complying with the local by-laws, which convictions in some cases were quashed by the Divisional and Appellate Courts, who sought to draw a distinction between cases where there were buildings on the opposite side of the roadway in question, and where there were not.

Compare:—

1. Attorney-General and Stourbridge U.D.C. *v.* Rufford.
2. Gozzet *v.* Malden U.S.A.
3. St. George's L.B. *v.* Ballard.

Then followed Devonport Corporation *v.* Tozer, which appears to over-rule the doctrine enunciated in Barton *v.* Eccles L.B., and to decide that the ordinary by-laws as to new streets do not apply to the case of building operations along an existing highway where the latter is not interfered with. It should be noted, however, that this cannot be taken as settled, for this case was really decided against the Corporation because they had omitted to obtain the consent of the Attorney-General to the proceedings.

The case of Smith *v.* Chorley R.D.C. decided that where a local authority have honestly considered plans submitted to them and they have decided that the proposed works amount to laying out a new street, no action for a mandamus to compel them to alter their decision will lie.

The result of this crop of litigation seems to be that where new buildings are being erected at the side of an old road repairable by the inhabitants at large, and there are no buildings on the *opposite* side, such building operations do not amount to laying out a new street: but that if there are already buildings on the opposite side, the reverse may be the case, though this has not been definitely settled. A building owner is therefore left somewhat at the mercy of the local authority, for if they decide that what he proposes to do amounts to laying out a new street, and he is convinced it is not, his only course is to proceed and to allow the authority to take the first step towards what may prove to be an endless piece of litigation, or to fall in with their requirements.

This is eminently a case where the surveyor to the authority could be consulted with advantage as to his views on the point, where there is any doubt, before much progress is made with a scheme, and so avoid waste of time and labour.

Another by-law relating to new streets in force in most districts runs as follows:—"Every person who shall construct a new street shall provide at one end, at least, of such street an entrance of a width equal to the width of such street, and open from the ground upwards."

To the "man in the street" this by-law means that every new street must have at least one end abutting on some other roadway, and that the line of abutment must be of the full width of such new street. And yet this, which is to me a very plain by-law, has been the bone of contention between authorities and owners in several cases, the former having attempted, and not unsuccessfully, to put upon it a strained, and to my mind, an utterly ridiculous meaning.

The earliest leading case appears to be that of Hendon

.B. *v.* Pounce—commonly known as Pounce's Case, where ne Local Board contended that by "entrance" was meant means of access," and that the roadway on to which the ew street joined must be also of the by-law width; so that a ew street could not be joined on to an old road or street nless the latter was of the width required by the by-laws, was widened to comply with them. Unfortunately, the udge in this case adopted this view.

The next case, and probably the most interesting on this oint, is Bromley L.B. *v.* Lloyd.

A more recent case still, where the position was somewhat milar, is that of Barton Regis R.D.C. *v.* Stevens, before ne Divisional Court, who held that Pounce's case must be ollowed, and that Mr. Justice Kekewich's judgment in romley L.B. *v.* Lloyd was right, and Mr. Justice Wills's udgment wrong.

A few moments' reflection will, I think, convince you that his last case reduces the law to an absurdity.

It practically ties up the greater portion of land in ountry districts served by narrow lanes, if the local authorities so will it.

Fortunately, few authorities appear to be taking up an nreasonable attitude on the point, and, in passing, I may emark that the Corporation of this city have a similar y-law so worded that the absurdity does not arise.

Taken in its liberal and proper meaning, I do not suppose there is any reasonably minded person who would object o it, but even then it may in some cases cause great hardhip, owing to the change in other requirements as to new treets.

Again, I may say that it is a by-law which—in whatever vay it may be construed—it is most important an architect vho has a development scheme in hand should bear in mind, therwise if its effect happen to be overlooked, great loss may e occasioned by the oversight.

2. *Building Lines.*

The next point in connection with building schemes vhich almost every architect must run up against at some ime or other, and which often requires very careful consideration, is the matter of the building line.

In entirely new districts where no building has yet been lone, the building line may generally be at the will of the lesigner, subject to compliance with any special local byaws in force. But where buildings are already in existence, he architect may find that the building line is already fixed for him and that such line is in his case a particular uisance, often restricting the general lay-out, and sometimes rendering parcels of land more or less waste and alueless.

Most of the cases which occur in this connection arise under powers conferred upon corporations or urban authorities to define the building line, or under the Public Health (Buildings in Streets) Act, 1888, which applies only to urban districts.

With respect to the exercise of the former, any person aggrieved by the action of the authority is generally entitled to compensation, and although in individual cases the prescribed building line may be obnoxious and detrimental to the owner, still he gets a solatium, whereas the powers conferred by the 1888 Act, especially where they are exercised in an arbitrary manner by the withholding of consent to the building line proposed by the owner for no apparent reason, may result in great inconvenience and loss to him: and should he seek to test the legality of the authority's decision, he will probably learn to his sorrow the really peculiar interpretations which can be put upon the provisions of this Act.

It is commonly thought that any question arising under this Act is one of fact to be determined by the magisterial bench; but when one comes to look into cases, one finds some very puzzling results.

One point is, that the existing buildings and the new one must be "in the same street" within the meaning of the Act, and it has been held in Ravensthorpe L.B. *v.* Hinchcliffe that for the frontage of two buildings to be in the same street they must be "in some degree of proximity."

This point came up for view in Warren *v.* Mustard, where the justices decided that the two buildings were in the same street and convicted, and on appeal the Divisional Court upheld their decision, Mr. Justice A. L. Smith saying that with regard to the question of the buildings being in the same street, that was a matter of fact for the determination of the magistrates, and in this case they had determined that the frontage formed by the line of cottages was in sufficient proximity, and whatever he might think of their decision, and however much he might regret it and regret the hardship it might cause to Mr. Warren, the Court *must* (please note the word) adopt it."

Compare this with the case of Leyton L.B. *v.* Causton, where the magistrates refused to convict, but the Divisional Court reversed their decision.

In the first case, which certainly seems open to argument, it was decided as a *fact*, and being so decided, was held not to be open to review, that the building did infringe the Act, whereas in the second case, which would appear to all ordinary persons a clear case of infringement, the magistrates decided as a fact that it was *not*, and then the High Court interfered with that finding.

It is such cases as these that reduce the law to chaos and give it the characteristics of a "Hass."

In connection with the question of the building line, I should like to draw attention to a case recently reported in the *Manchester Guardian*, and also in the *Builder*, which touches the architect very closely—in fact, touches him in his tenderest part, viz., his pocket.

Shortly, the facts were these. An architect was suing in the County Court for fees for preparing plans for the erection of some shops. He prepared the usual copies for depositing with the Corporation, who, after keeping them six weeks, intimated they could not pass them, as they intended widening the street by 15 feet. The defendant owner had seen the plans and had approved them.

Owing to the decision of the Corporation as to the widening, the plans were rendered useless, and the defendant refused to pay for them, contending that the building line was one of the most important points an architect had to comply with, and that it was the architect's duty to ascertain definitely where that line was before proceeding to draw the plans, and that if he neglected to do this he proceeded with the plans at his own risk; in the end the judge adopted this view.

At first sight I was tempted to regard the result as unjust, but when it appeared that the architect knew beforehand that a widening was in contemplation, but not definitely decided upon, my sense of injustice was lessened, as any careful man would have endeavoured to have arrived at a definite line with the Corporation before proceeding with the complete plans, and would have obtained his client's instructions to negotiate, for which of course he could have claimed payment.

3. *Air Space.*

Having successfully negotiated the obstruction known as the "building line," an architect may in ninety-nine cases out of a hundred fire away with his building without encountering further obstacles, but on the hundredth occasion may be unlucky enough to be caught in a trap with respect to air space. There is no necessity for me to detail the usual regulations as to air space about buildings, for they are pretty straightforward and seldom give rise to much difficulty. Unfortunately, however, the man who first drafted this rule would appear to have belonged to the fraternity of those who believe the world is flat in the literal sense, and to have been unaware that buildings are at times erected on a hillside.

Some years ago I had to deal with the question of air space in connection with a building erected on a hill-side.

The circumstances were as follows:—

Plans of the house were submitted to the local authority, on which a level space of about 7 feet was to be excavated at the back, and then a retaining wall about 4 feet high erected to uphold the garden. The authority refused to pass the plans unless the hill-side were excavated for 15 feet from the back wall of the house, the latter being of such a height that an air space of 15 feet wide was required by the by-laws.

This contention appeared ridiculous, and after considerable delay, filled up by argument with the Council's surveyor, the Council eventually gave way, and I for a long time was under the impression that the Council were legally wrong in their contention. In 1907, however, the case of Holroyd *v.* Healy's Breweries was fought out, where the circumstances were somewhat similar, except that the back wall butted up to the hill-side and that the building was a suite of offices.

The magistrates convicted the owners of a breach of the by-laws: on appeal, by a majority of the Court this decision was upheld. It is curious to note that all three judges described the result as ridiculous, Mr. Justice Darling remarking that as the by-law stood he did not seen any use in the air space at the back, as a privy and ashpit might be erected on it, and there was nothing prohibiting these erections covering the whole space.

I believe the construction put upon the by-laws as to air space I have just described are not generally adopted on the one hand by the Councils, and on the other by owners, and I hope nothing I have said will incite anyone present to attempt to put such construction into practice.

To illustrate the cases he quoted, Mr. Taylor exhibited a number of coloured diagrams.

Invitations had been sent to the surveyors of the local authorities, and several of these gentlemen were present.

The President, Mr. Robt. Evans, invited all visitors to take part in the discussion.

A number of interesting points were brought up in the discussion, in which most of those present took part, and at the close Mr. Heazell proposed, and Mr. Gill seconded, a vote of thanks to Mr. Taylor for his instructive paper. Mr. Maylan supported this on behalf of the visitors, and also thanked the Society for their invitation.

ENGLISH MEDIÆVAL ARCHITECTURE.—X.

HE tenth and final lecture of the admirable course given by Mr. Edward S. Prior, F.S.A., F.R.I.B.A., at University College, Gower Street, W.C., through the good offices of the Carpenters' Company, was delivered on the 14th inst. In the preceding nine lectures Mr. Prior had traced the history of ecclesiastical building in this country from the seventh century until the Dissolution of the Monasteries in 1539, and had copiously illustrated his remarks by remarkable lantern slides. The lectures were distinguished for their deep knowledge, the originality of many of his ideas, and, we may add, for their eloquence.

It was a fitting conclusion that the last lecture of a popular course, given to an audience which was apparently untechnical for the most part, should deal exclusively with parish-church architecture. The salient peculiarities of this parish church style, said Mr. Prior, developed themselves distinctly towards 1350, and may be summed up in two directions—first, as developing from Saxon planning, and, secondly, as developing from chantry addition. The following features had been in evidence in pre-Conquest churches: (1) The projecting square sanctuary with its narrow chancel arch, as at Deerhurst; (2) the broadly oblong nave, wider than the sanctuary, as at Bradford-on-Avon; (3) the side entrances to that nave, as at Bradford; (4) the transeptal chapels placed on either side of it, as at Dover; (5) the tower usually at the west end, but in one type central between nave and sanctuary. The naves, moreover, had been sometimes aisled, though perhaps only in the basilican monastic type.

In the twelfth, thirteenth, and fourteenth centuries these Saxon features had been enlarged. The aisles had become more frequent, the side chapels more abundant, the side porches more conspicuous, and particularly the chancel, like the Lady chapel, grew in length. The pre-Conquest plan developed on its own lines until the thirteenth century. In the fourteenth it became completely transformed by enlargements of a peculiar kind.

One conspicuous peculiarity in parish-church building can be seen to be fundamental—making it diverge constructionally from the great church types. These latter were great erections built more or less to completion on the definite scheme of monastic and canonical accommodation, and show at the most some three or four rebuildings. The parish church, however, begun on the smallest scale, was being continually enlarged and transformed—continually adapted, rather than rebuilt—until it became a confused medley of twenty buildings. Parish church style might be defined as growing up in the habit of makeshift addition. In all monastic building the vault-bay, with aisle, was the originating segment of construction, out of which the fabric grew by reduplication or adaptation. But for the parish church no such originating creative scheme lies at the back of its style. Its principle was only that primitive one of wall building—the removal of one wall and the building of another made its scheme. The originating segment was simply a wall with a window. The aisle itself formed no essential part of its plan, for parish church arcades are merely replacements of wall, and often made with little connection with what has been already built.

The origin of these disconnected enlargements was, in a general way, the building of chantries and special chapels by the feudal aristocracy and the successive dominating families. Such additions always meant that an open arcade took the place of the windowed wall, in order that the church proper might not be entirely deprived of its lighting. Projections east, west, north, and south soon completely smothered the definite ground plan of nave and chancel. However, in this haphazard planning is written generally the story of the parish. Great prosperity meant grateful rebuilding. In such ambitious fifteenth century work the Saxon types were lost. The chancel was no longer the single cell-like sanctuary or the narrow presbytery of the twelfth and thirteenth centuries; it was built, indeed, not for the single mystic rite of religion, but to offer its whole area to the people in various services. So the churches became the experiment of a new masoncraft, one of popular, not monastic, origin.

Beside the chapel enlargement of feudal lords or wealthy clothiers, the parish church plan of the fifteenth century shows the power of the all-pervading guilds. These guilds had sometimes their chapels outside the church fabric. More often they endowed chantries in the churches, so we find them constantly builders of aisles and transepts. The spreading-out of the church originated from guild-building as much as from feudal chapels.

The style of the English fifteenth century parish church may be summed up, in comparison with the great monastic churches, as developing (1) in place of the cross-church, the oblong aisled plan, as at Lynn; (2) in place of the central tower, the west tower, as at Boston; (3) in place of the functioned bay, the unfunctional arcade, as at Southwold; and (4) in place of the ordered symmetry of vaulted nave and aisles, a many-pillared hall, wood-ceiled. However, by the side of this democratic, unorganised building there were in progress the great chapels and other examples of the state-style of Perpendicular building. Furthermore, there were the multitudinous shops of church furniture and stone masonry.

The two districts where the latest church building developed most distinctly were East Anglia and South West England, or Wessex. In both the general prosperity came with a certain suddenness, through the wool industry. Consequently the ambition of the church builders might ignore the small ancient structure hitherto sufficient, and set out a fresh creation. The new buildings faithfully reflect the varying parish church conditions in each locality and the expediency of building under the conditions of place and time.

The eastern counties having no freestone, the walls were made of rubble flint with dressings of imported sea-borne stone in small sizes. Out of such materials grew the flint and stone panelling that gives with the least use of dressed stone an appearance of elaborate texture on a near view. The body of the walls is solid; the towers and porches are square, uncompromising blocks; the windows are flat and finely divided; the carvings and mouldings neat and rendered in low relief. In the west country, however, there was in every valley a big sound stone that invited bold and vigorous carving. The west-country church is sculptured from top to bottom. Its towers and porches are elaborately contoured and richly buttressed, with great battlemented parapets and projecting gargoyles of wonderful devilry. The interiors of the east and west offer similar contrasts. The church of the eastern counties presents to the eye a flat, shallow rendering of internal detail. The western has a coarser big treatment of moulding, and particularly an elaborate use of internal stone panelling for arches. As in masonry, so in carpentry. The ceilings of fifteenth-century churches are quite different things in Norfolk and Devon. And, finally, the local crafts of church furnishing, especially in the screens and pews of the east and west of England, show a varying expansion of style.

The habits of fifteenth-century carpentry specially developed three constructions of roof, viz.: (1) the hammerbeam, (2) the flat, (3) the braced rafter. Of these the east country developed especially the hammerbeam for its main roof, and flat ceilings for the aisles, allowing a clerestory window. The west country developed the braced rafter roof on nave and aisles in the form of a waggon-tilt—such barrel roofs in parallel compartments allowing no clerestory at all. The hammerbeam came as an invention to help the fine scale of the eastern church. With the tie-beam construction a span of 33 feet was as much as could be conveniently given. But at London c. 1370 there was being roofed Westminster Hall with a span of 60 feet by means of great hammerbeam trusses. The hammerbeam was a scientific adaptation of the principle of the trussed rafter adopted for the purposes of a tie-beam. The lightness finally attained was extraordinary. But in the south-west of England we have little of this daring carpentry. There roof construction of braced rafters dispensed with the tie-beam, and made itself the whole basis of construction without use of any principal trusses. The method adopted was to make a succession of arched tie-trusses. The flat ceiling appeared first in the aisles to allow as much clerestory window-space as possible. Then this construction was found convenient for the high have also.

Up to 1350 one must believe that every Gothic tower had been begun with the intention of a stone spire, or at all events of a conical roofing in stone. But in England the conical wood roof of the tower, covered with shingles or lead as a finish, was never entirely abandoned. Now lightning and conflagration, winds and decay, were always bringing these to destruction, and the money to replace them was not always forthcoming. So the habit of a square-topped spireless tower became by custom agreeable to English eyes, and after 1350 the battlementing and pinnacling of that tower was the finish that fifteenth century ambition finally looked to as sufficient. The peculiarity of English tower building was always its insistence on squareness of outline. The variety of local use makes one of the most interesting points of the later style.

Finally, there was a complete surrender to the stress of domestic building craft. The flat ceiling denied all the principles of stone construction conditioned by vaulting. The English were at the Dissolution to throw on one side the motives and the passions which had conditioned the extraordinary mediæval art of building. The last flicker of religious service that seems to have had power enough to make architecture after 1500 was the sport of bell-ringing—which was a symbol of emancipation. It had been a lord's privilege to have a bell. In the last years of the mediæval tradition it became that of the parish.

LECTURES ON HEATING AND VENTILATION AT UNIVERSITY COLLEGE, LONDON.

On Tuesday, November 21, the last of a course of six public lectures on the "Real nature of the problems in heating and ventilation awaiting solution by the Engineer," was delivered by Mr. Arthur H. Barker, B.A., B.Sc., at University College, Gower Street, W.C.

He had previously considered the various factors which contributed to the loss of heat from buildings under quite normal conditions and had suggested means of testing the extent of such loss, in order to revise our present practice in regard to this question. He now proposed to touch upon the real nature of some of the problems which daily confronted the heating engineer, and which he was called upon to solve. He was often required to decide what was the power of a boiler, but it must be remembered that this was not a fixed quantity. It depended upon conditions having no connection with the boiler itself, although these conditions affected its efficiency. The quantity of water available from a tap, or the rate of discharge, depended upon such factors as the pressure of the water, the size of the supply, the length of pipe, the degree of smoothness of, and the number of bends in the pipe, the height of the tank, or source, and also upon the number of other taps supplied by the same service. All these points had some influence on the efficiency of the tap. In just the same way the efficiency of a boiler depended upon such conditions as the quality of the fuel burned, the size and height of flue, the extent of soot and dirt and the number of air leakages and bends in the chimney, the nature of the chimney top, and the direction and velocity of the wind, all of these contributing to, or detracting from, the intensity of combustion of fuel in the furnace.

The essential facts were that in a furnace consuming 20 lb. of coal per hour and yielding 12,000 B.T.U.'s per pound of coal burned, a total of 240,000 thermal units per hour, probably an efficiency of 85 per cent. was possible, whilst in practice 65 to 75 per cent. was all that was obtained, depending upon the draught or quantity of air drawn through the furnace. The size of grate had also to be considered, as a smaller grate meant a larger resistance, which was increased still further by accumulations of ash as the fuel burned away. An increase in the amount of fuel consumed in a furnace would be accompanied by a greater yield in power, and as this had reference to the draught and the nature of the fuel the problem was much complicated. How was the heating engineer to arrive at the power of a boiler even when such conditions were precisely defined? For another factor arose with regard to the stoking and the degree of attention, skilled or unskilled, which a furnace received. A common solution lay in the provision of a boiler larger than an installation really required. The fact was continually recurring, however, that the vital condition which governed the power of any boiler was primarily the size of the chimney; for a smaller furnace having a larger flue produced intense combustion—depending again upon the thickness of the fire, a relatively smaller quantity of air being required by a thicker fire. Normally, 1 lb. of coal requires 250 to 300 cubic feet of air for complete combustion. Should the combustion be allowed to become too intense there was danger of damaging the grate if left unattended.

With our present knowledge it was found impossible to consider all these varying points, and the normal power of a boiler was usually determined by rule of thumb, the value being calculated at about 2,500 B.T.U.'s per square foot of boiler surface. This was known to increase with the consumption of fuel, up to a point which caused a little variation in efficiency. The problem to which heating engineers should devote themselves was the obtaining of a maximum of efficiency for the fuel consumed. This was all that the householder required.

Another problem yet to be solved was the determination of the extent to which fresh air introduced into a building should be pre-heated. Ventilation consisted in the removal or withdrawal of impurities contained in the exhalations of persons using a building and the introduction and distribution of sufficient fresh air to maintain a certain standard of purity. At the same time the public demanded that this should be done without draught. From experiments which the speaker had made upon himself it had been shown that a draught or air current at a temperature of 75° was not perceptible at a rate of 3 feet per second. At a rate of 2½ feet per second it was just perceptible when its temperature was 65°, and when the temperature was 5° lower it was evident at a speed of 2 feet per second. Therefore, the best condition was when it was moving slowly, and this it was impossible to govern over a large space. However, its rate of introduction should not exceed 3 feet per second. Draughts other than those caused by direct air currents, introduced for purposes of fresh air supply, might be divided into three classes: (a) secondary, (b) condensation, and (c) induced draughts. The former were air movements set up by primary draughts and could be remedied by suppressing these direct air movements as hinted above; the second variety consisted of movements set up by increases in density due to contact with surfaces, such as windows or walls, of a low temperature, and were more difficult to deal with; the latter consisted of air currents induced by means such as radiators causing hot air to move upwards, which in turn caused other movements to make good the displacement. In considering the practical application of the supply and extraction of pure and foul air respectively, the problem was how this could be done to secure the best results. The conditions required were that in no part of a room or hall should the proportion of CO^2 exceed a certain fixed quantity, and this implied that the impure air should be diluted at such a rate that this standard should be maintained at every part of the room.

Where any number of people are collected in a room, this became practically impossible in the occupied part.

Several methods of air introduction and extraction were open to objection on practical grounds. Thus, where air was introduced through the ceiling and extracted at the floor the gratings in the latter either became choked with dirt and dust, or, if projecting above the floor level, were thus inconvenient unless used under fixed seats or in risers, &c. Other systems often set up such movements, having regard also to currents induced by radiators, that the centre of a large room was starved of fresh air. The introduction of fresh air through the lower part of walls, the inlets being behind radiators, was satisfactory, provided the heating surface was not maintained at too high a temperature, which in low rooms served to pull down the vitiated air collected at the ceiling.

The unintelligent handling of ventilation plants was a great difficulty, the solution of which would greatly help to produce efficiency and comfort, and until the subject was regarded by persons in charge as being quite as important as the lighting of a building, and as much thought and attention bestowed upon the subject, the most efficient of plants would continue to give dissatisfaction.

The efficient cleaning of air ducts constituted another difficulty, for it was a fact that in many cases the Plenum system necessitated the passage of the fresh air supply through ducts coated with extensive accumulation of dust. Whether any ill-effects were to be feared from this was not clear, it being maintained by some that the breathing of such air is in no way injurious.

VALIDITY OF ARCHITECT'S CERTIFICATES.

In the King's Bench Division on Monday, November 27, and the following day, Mr. Justice Coleridge had before him a claim by Messrs. Ashwell & Nesbitt, Ltd., hot-water engineers, of Leicester, against Messrs. Allen & Co., builders, of Westminster, for £377 for work done and material supplied. In the course of the case several interesting points as to the certificates of architects were raised.

Mr. J. B. Mathews, for the plaintiffs, said that the amount claimed was the balance of a contract for heating apparatus to the amount of £3,320. The sum of £377 had been certified to be due to the plaintiffs by Mr. F. T. Verity, the architect for the building owners. The plaintiffs were the general contractors for shop premises which Messrs. Lewis & Allenby (1909), Ltd., were erecting in Regent Street, W., on land belonging to the Crown. The plaintiffs were sub-contractors, and had received various sums on the architect's certificate, which left a balance due of £377. The defendants denied liability, saying that the work was done under contract, and that it was a term of the contract that payment would only be made on the inclusion of the amount due to the plaintiffs in the architect's certificate to the defendants, and on payment of that amount. The question was, had the defendants received the money from the building owners? A certificate was issued by Mr. Verity for £1,595, and in addition to that the defendants had a claim for extras against the building owners for about £7,500. They settled that and the £1,595 certificate for £5,000, receiving £1,000 in cash and securities for the remainder. The plaintiffs contended that the terms of that settlement were equivalent, as between themselves and the defendants, to a payment in cash, and that they were entitled to stand upon the certificate for £377 and be paid that amount.

Mr. Justice Coleridge: Can the certificate be got over on the ground of mistake?

Mr. Mathews: I think it is impossible to suggest mistake. The defendants had no right to hold over the balance due to the plaintiffs, because they had entered into an arrangement with the building owners.

In answer to his Lordship, Mr. A. A. Hudson, K.C., who appeared for the defendants, said his points were that the amount due to the plaintiffs must be included in the certificate to the defendants, and that they must receive the amount.

Mr. Justice Coleridge: The certificate to the plaintiffs was given before the action was brought; then a certificate was given to the defendants, and a settlement of the latter was arrived at in lieu of it being paid.

Mr. Hudson: Yes.

Mr. Justice Coleridge: It included the plaintiffs' £377?

Mr. Hudson: We say it does not. Disputes were going on as to the number of radiators and hydrants put into the building, and we had given the building owners credit.

His Lordship: Can you go behind the certificate on that ground?

Mr. Hudson: Yes, because the architect, without any notice to my clients, issued the £377 certificate.

His Lordship: He had a right to do that.

Mr. Hudson: I say not, in view of the fact that he must have known that we had already given the building owner large credits in respect of work and goods.

His Lordship: Do you say that the certificate of an architect is bad unless he gives notice to the building owner that he is going to issue it?

Mr. Hudson: Yes; I can give authority for that.

His Lordship: I will bow to it.

Mr. Hudson then quoted the case of Armstrong *v.* The South London Tramway Co., Ltd., reported in 75 Law Times Reports.

His Lordship pointed out, however, that the man (who was not an architect) who gave a certificate in that case was an employé of the Company.

Mr. Hudson: The architect is merely the agent of the building owner.

His Lordship: He is the person who acts between the two parties.

Mr. Hudson: The old idea that a certificate could only be upset on the ground of fraud or collusion is dead. The architect is now in a quasi-judicial position, and it has become more apparent than ever that once an architect is placed in this quasi-judicial position he must act in the same way as an arbitrator, except that he need not swear witnesses. He must be absolutely independent and impartial. There is a case in which the House of Lords said that if an architect did not act independently and with sufficient strength of will an award would be upset. In this case the architect receives an account for work done. On one side is the amount which the plaintiffs say they have received from us, and on the other side is the contract price. How can the architect know without inquiry whether we have paid the plaintiffs one amount or another?

Mr. Justice Coleridge: That does not matter.

Mr. F. T. Verity, F.R.I.B.A., of 7 Sackville Street, St. James's, gave evidence for the plaintiffs. The building surveyor was his brother, Mr. E. G. Verity, and Mr. S. W. Robinson, of Hanover Square, was the consulting engineer. The certificates and figures in connection with the building were checked by the Surveyor of Woods and Forests on behalf of the Crown. The certificate for £1,595 which he issued to the defendants included the £377 due to the plaintiffs.

In cross-examination, he admitted that for the certificate for £1,595 he relied upon the figures supplied by Mr. Ernest Verity.

Mr. Hudson: You merely put your name to whatever your surveyor told you?—Yes.

No evidence was called for the defence.

Mr. Justice Coleridge, in giving judgment, said that the value of the work sued for was proved, and, *prima facie*, that gave the merits of the case to the plaintiffs. Merits, of course, did not always decide questions on building contracts, because very often the building contractor put his name to documents which no wise man would do, and sometimes the terms were almost penal in their character. The final certificate of £1,595 would *prima facie* include the plaintiff's claim, and in the absence of fraud or collusion it would be a certificate which could be sued upon. He found that the work had been executed properly to the satisfaction of the architect, and held that the arrangement by which the defendants had settled their claim against the building owners was equivalent to payment of the certificate.

Then it was said that the plaintiffs' work had not been certified, but he found that the £377 certificate was effective. No fraud or collusion was alleged by the defendants, but they said that the architect was a dummy; and certainly when an architect said in the box "I signed this document [certificate] ignorant of its effect—I simply put my name to it," his Lordship said he hardly knew what to say. He did not know whether that was the usual practice. Mr. F. Verity had said he relied upon his brother, the quantity surveyor, who knew everything, and in whom he had confidence, and who assured him in each case that the work was in order and had been done. If he (the Judge) had seen any serious ground for believing that the action of the architect had resulted in any injustice to the parties he would have seriously turned the matter over in his mind, but when he found that though the work of the architect on the certificate might have been done by a school-board boy it had not resulted in any injustice or loss to the parties, he would not interfere. Although the certificate of £1,595 was not a document of any value to the plaintiffs unless the defendants had been paid—apart from the question of extras—they did get £1,000 in cash, and therefore the plaintiffs must succeed. They had done the work and got the architect's certificate. Judgment for the plaintiffs for £377 and costs accordingly.

BOOKS RECEIVED.

The House and its Equipment. Edited by Lawrence Weaver.
(London. Offices of *Country Life*. George Newnes, Ltd. 15*s.* net.)

Italian Castles and Country Seats. By Tryphosa Bates Batcheller.
(London. Longmans, Green & Co. 25*s.* net.)

The Art of Polychromatic and Decorative Turning. A practical manual for the professional and amateur turner. By George Ashdown Audsley, LL.D., architect, and Berthold Audsley, architect. Illustrated with twenty-one plates.
(London. George Allen & Co., Ltd. 4*s.* 6*d.* net.)

Millais. By J. E. Phythian.
(London. George Allen & Co., Ltd. 2*s.* net.)

The Nation and its Art Treasures. By Robert C. Witt, M.A., F.S.A.
(London. William Heinemann. 1*s.* net.)

Reinforced Concrete Compression Member Diagram. By Charles F. Marsh, M.Inst.C.E., M.Am.Soc.E., M.Inst.M.E.
(London. Constable & Co., Ltd. 3*s.* 6*d.* net.)

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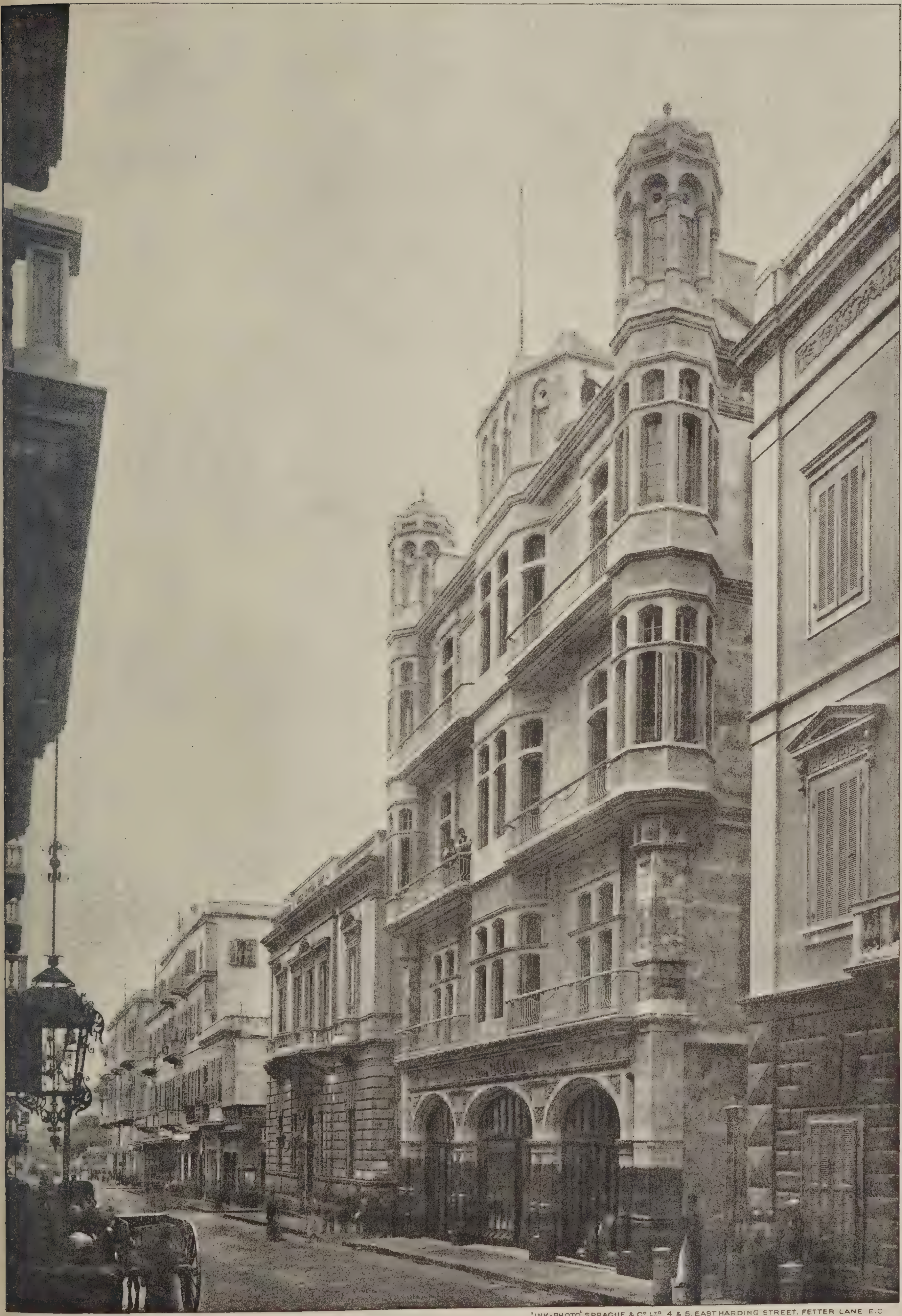

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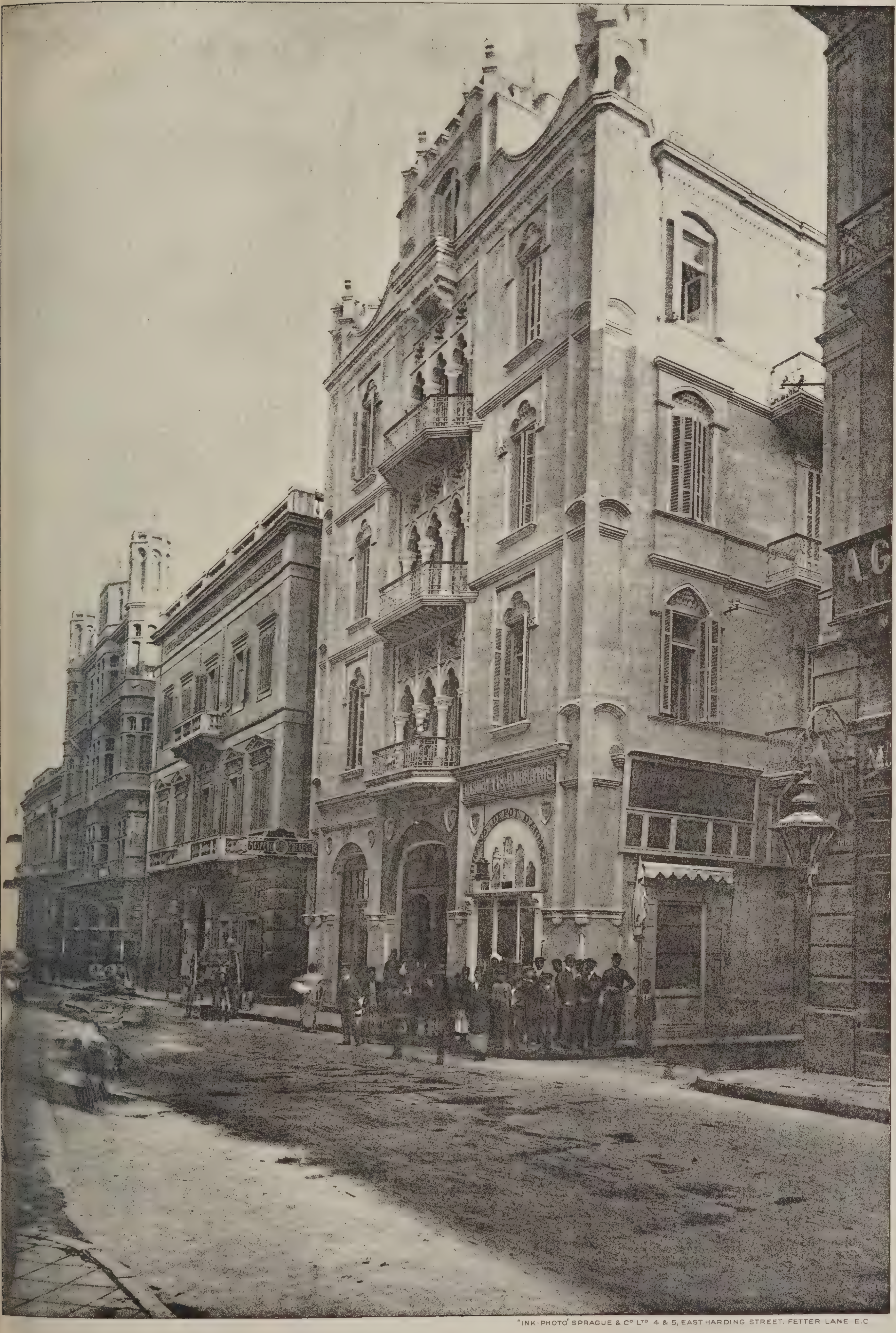

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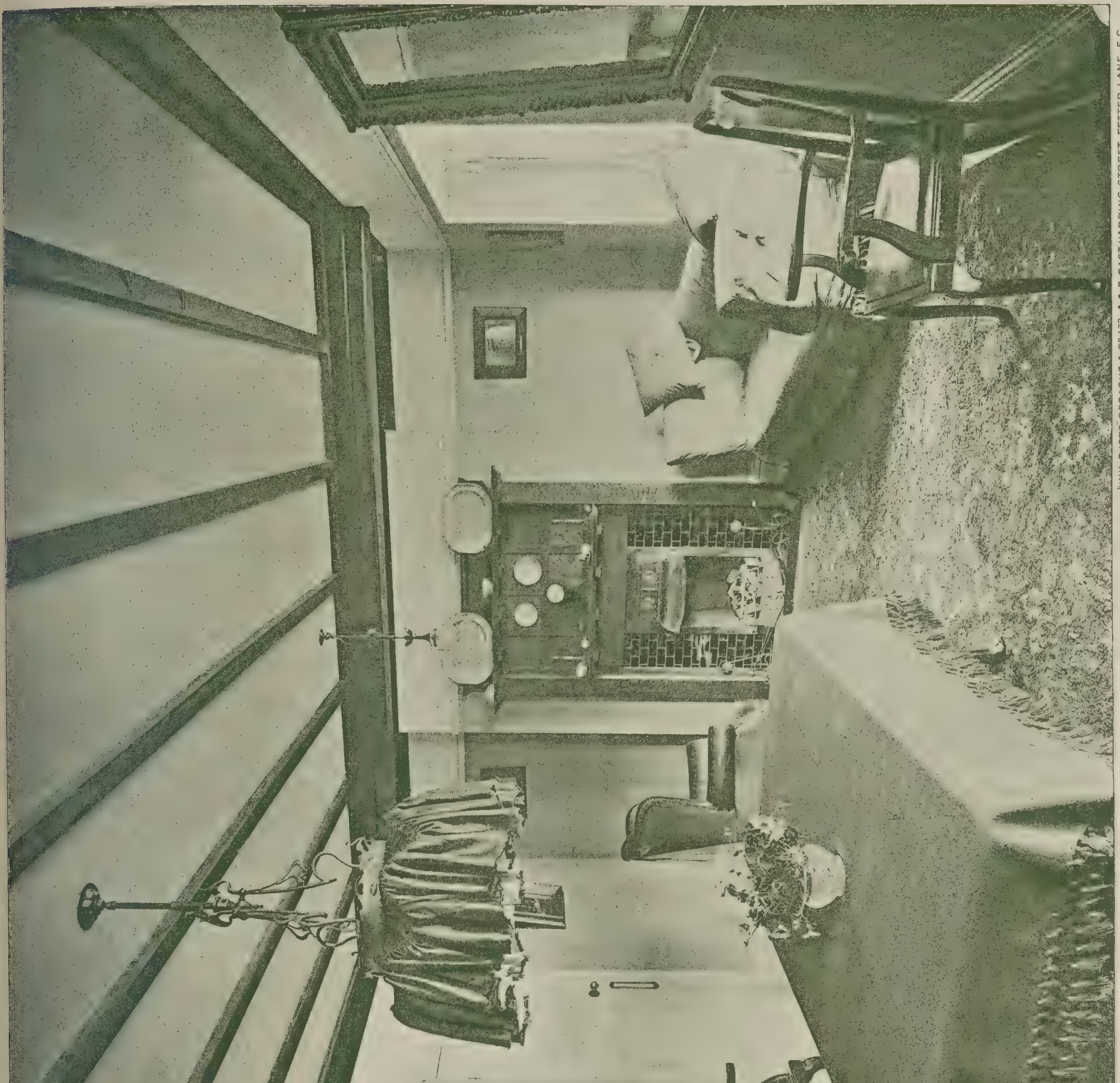

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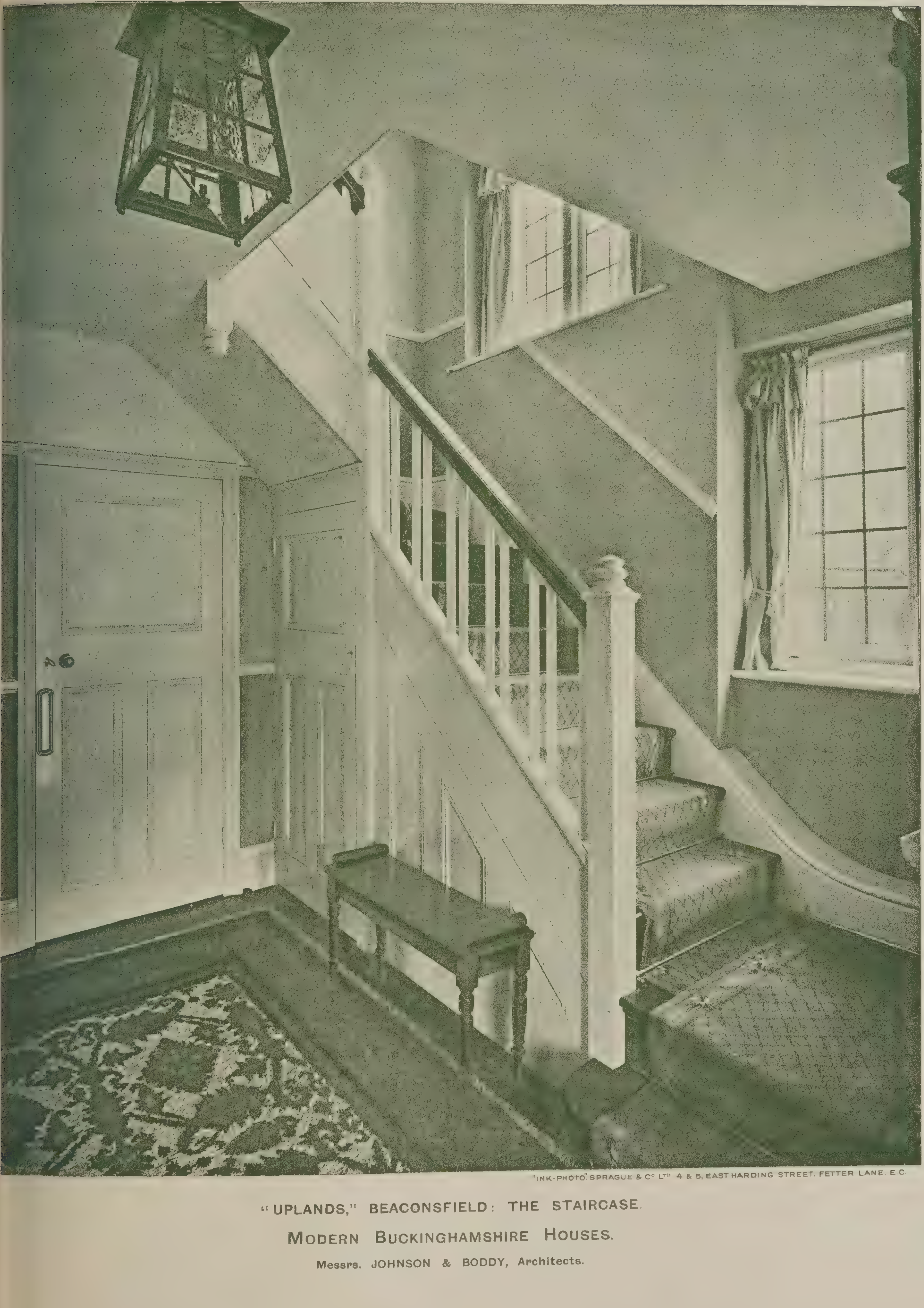

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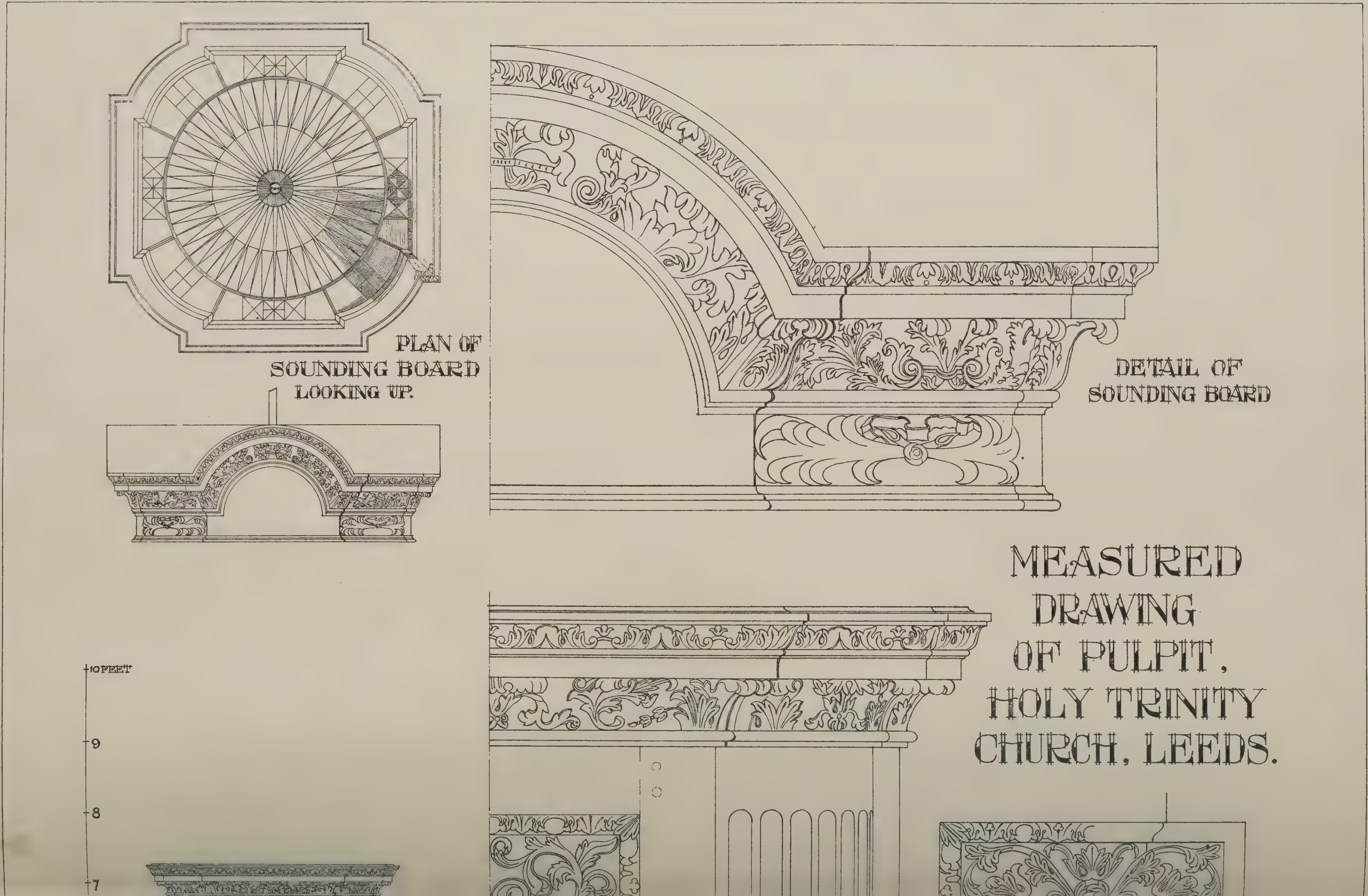

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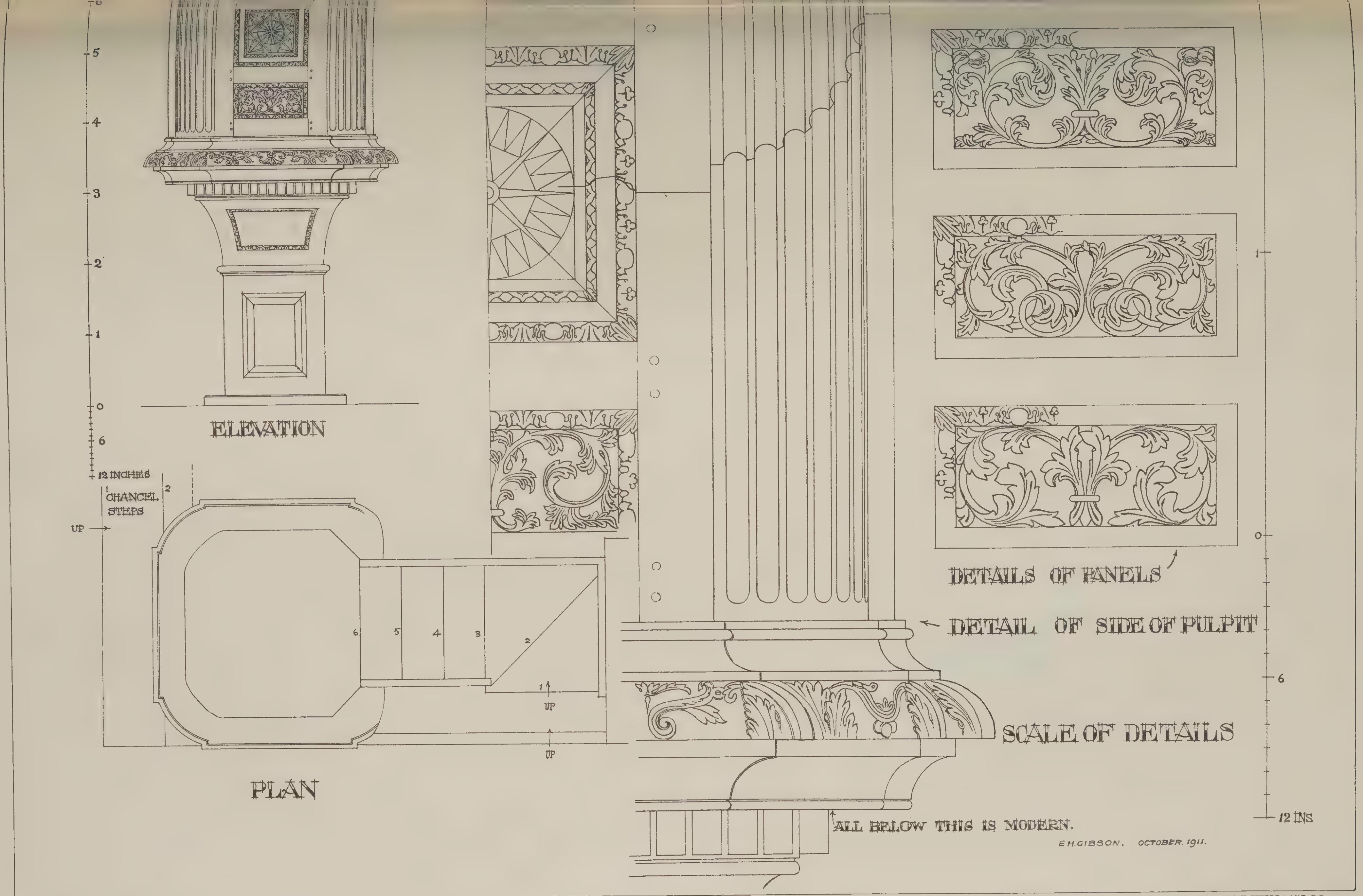

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COMPETITIONS OPEN.

ATHENS.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l*. A first prize of 800*l*., and a second prize of 320*l*. will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

EGREMONT.—Aug. 8.—The Urban District Council offer premiums of £40 and £10 for a scheme to lay out, under the Housing of the Working Classes Act, building sites at Egremont and Bigrigg. The Egremont site consists of 1 acre, 1 rood, 16 poles, and the Bigrigg site 3 acres, 1 rood, 28 poles. Further information may be obtained from the Surveyor, Town Hall, Egremont, Cumberland.

SCOTLAND.—Aug. 1.—The Committee of the Battle of Largs Memorial Fund invite sketches of a suitable memorial to commemorate the battle of Largs, 1263. The site of the memorial will be on the foreshore of Largs, but the exact position has not yet been determined. The committee have at their disposal the sum of 300*l*., which is the maximum sum to be expended on the erection. A premium of 5*l*. will be paid for the successful sketch. The sketches will be judged by the subscribers. Mr. Peter Morris, Town Clerk, Largs.

YEOVIL.—The Corporation of Yeovil invite competitive designs as follows:—(1) For laying out a site of about 10 acres of land for the purpose of erecting houses for the working class, and (2) for houses to be erected thereon. In respect of each class of design premiums of 20*l*. and 10*l*. will be awarded. Particulars and conditions of site may be obtained upon deposit of 10s. 6d. from the Town Clerk, Yeovil.

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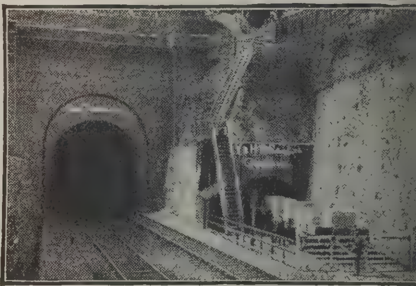

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CONTRACTS OPEN.

Aldridge.—July 15.—For extensions to the R.A.O.B. Orphanage, G.L.E., Aldridge, Staffs. Send application and £1 1*s*. deposit by July 8 to Messrs. Jeffries & Shipley, architects, Bridge Street, Walsall.

Aspatria.—July 15.—For the work required in erection and completion of a caretaker's house, Aspatria Council School. Mr. J. Forster, M.S.A., architect, 13 Earl Street, Carlisle, or Mr. F. Richardson, school correspondent, Aspatria, Cumberland.

Aston.—For the demolition of the Great Hall, for the Warwickshire Territorial Force Association. Deposit £1 1*s*. Messrs. James & Lister Lea & Sons, architects, Cannon Street, Birmingham.

Barlby.—July 22.—For the construction of a new pumping station for the Riccald Rural District Council. Deposit £5. Mr. E. J. Silcock, M.Inst.C.E., Sanctuary House, Tothill Street, Westminster, and 10 Park Row, Leeds.

Barrow-in-Furness.—July 12.—For the reglazing of No. 2 Bay of the Covered Market. The Borough Engineer's Office, Town Hall.

Belfast.—July 11.—For the erection of drill hall and rifle range at the Queen's University of Belfast. Architect, Mr. W. H. Lynn, Belfast. Deposit £2 2*s*. Messrs. W. H. Stephens & Sons, surveyors, 13 Donegall Square North, Belfast.

Billinge.—July 14.—For the erection of an elementary school at Billinge, near Wigan. Deposit 2*l*. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston, Lancs.

Bewcastle.—July 15.—For the whole of the work required in erection and completion of a master's house, Bewcastle Park Council School, Cumberland. Mr. J. Forster, M.S.A., architect, 13 Earl Street, Carlisle, or Mr. W. H. Johnston, school correspondent, Craigyford, Penton, Carlisle.

Billingham (Durham).—July 14.—For widening Billingham Race Bridge, near Billingham, with steel and brickwork. Mr. W. Crozier, county engineer, Shire Hall, Durham.

Boldon (Durham).—July 10.—For the various works of drainage, brick walling, asphalte paths, &c., in the proposed extension of Boldon Cemetery. Mr. C. W. Bell, architect, 17 Norfolk Street, Sunderland.

Bolton.—July 18.—For extensions to the Townleys Hospitals. Deposit 5*l*. Mr. J. Ward, architect, 24 Mawdsley Street, Bolton.

Brighton.—July 10.—For erection of two pavilions on the Moulsecoombe playing fields, for the Education Committee. Messrs. T. Simpson & Son, surveyors, 16 Ship Street, Brighton.

Cambridge.—July 17.—For the construction of a foldyard at the sewage farm, Milton Road. The Borough Surveyor, Guildhall, Cambridge.

Cheltenham.—July 11.—For remodelling bakery, erection of cooling-room, loading way, coke bunkers, and extensions to grocery warehouse, Grosvenor Place South. The Gloucester Co-operative and Industrial Society, Ltd., Brunswick Road, Gloucester, or Mr. T. Malvern, architect, 21 Winchcombe Street, Cheltenham.

Chester.—July 13.—For the erection of a laundry work centre, adjoining the Public Baths. Deposit £1. Messrs. Minshull & Muspratt, architects, Abbey Square, Chester.

Chopwell.—July 10.—For providing and fixing shop fittings at new branch stores, Chopwell, for the Annfield Plain Co-operative Society, Ltd. Mr. G. Thos. Wilson, L.R.I.B.A., architect, 22 Durham Road, Blackhill.

Cleethorpes.—July 11.—For the erection of a temporary convenience in wood on the golf links. Mr. E. Rushton, engineer and surveyor, Council House, Cleethorpes.

Cliviger.—July 17.—For the erection of a county police station at Cliviger, near Burnley, Lancs. Deposit £2. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

Crosland Moor (Yorks.).—July 10.—For the various works required in the erection of a dwelling-house in Everard Street. Send names by July 10 to Messrs. J. B. Abbey & Son, architects and surveyors, 34 New Street, Huddersfield.

Croydon.—July 17.—For the builder's work necessary in the erection of a convenience for men and women at Frith Road. Deposit £1 1*s*. The Borough Engineer, Town Hall, Croydon.

Devizes.—July 11.—For work in connection with the erection of a mess room at the County Asylum. Deposit £1 1*s*. Mr. J. G. Powell, county surveyor, County Offices, Trowbridge.

Devizes.—July 11.—For works in connection with roofing and flooring the north and south blocks at the Central Police Station. Deposit 2*l*. 2*s*. Mr. J. G. Powell, county surveyor, County Offices, Trowbridge.

Devonport.—July 10.—For supplying and fixing the carpenters' and joiners' work, slating and plumbing, &c., in connection with the erection of a store at Pottery Quay. Mr. John F. Burns, borough surveyor, Municipal Offices, 29 Ker Street, Devonport.

Dewsbury.—July 12.—For the wood block flooring, &c., required at the Boothroyd Lane Council School. The Borough Surveyor's Office, Town Hall, Dewsbury.

Elland.—July 14.—For the several works required in connection with the reconstruction of the grocer's and butcher's departments at the Stores at Elland, Yorks., for the Halifax Industrial Society, Ltd. Messrs. Clement Williams & Sons, architects, Post Office Buildings, Commercial Street, Halifax.

Exeter.—For the repair of St. Paul's Rectory, 16 Southernhay West. Mr. E. H. Harbottle, County Chambers, Queen Street, Exeter, and Rev. E. Reid, 24 Haldon Road, Exeter.

Enfield.—July 12.—For erection of a public library on land adjoining Cecil Road. Mr. Richard Collins, surveyor, Public Offices, Enfield, or send 2*l*. 2*s*. deposit to Mr. T. W. Scott, clerk, Public Offices, Enfield.

Gillingham.—July 20.—For erection of a chapel, Nelson Road, for the Trustees of the Primitive Methodist Chapel. Deposit 1*l*. 1*s*. Mr. E. J. Hammond, C.E., M.S.A., architect and surveyor, 21 Balmoral Road, Gillingham, Kent.

Harlow (Essex).—July 13.—For erection of six cottages at Broad Street, for the Oddfellows Society. Mr. W. B. Marfleet, secretary, Bury Road, Harlow.

Hensingham.—For the various work required in taking down the present church, and the erection and completion of a new church at Hensingham, Cumberland. Mr. J. Slack, M.S.A., architect, 18 Bank Street, Carlisle.

Highworth.—July 18.—For erection of a house at Highworth station, Wilts., for the Great Western Railway Co. The Engineer at Bristol station.

Hockley.—June 10.—For repairs at the premises known as the Great Eastern Stores, Hockley, Essex, for the Guardians of Rochford Union. Mr. F. Gregson, clerk, 46 Alexandra Street, Southend-on-Sea.

Huddersfield.—For summer renovations of school premises of Golcar, Crow Lane, and Wellhouse, and of Slaithwaite, Nields; Golcar, Crow Lane, new ventilating windows; Slaithwaite, Wilberlee, pointing of boundary walls. Send applications at once to Messrs. Edgar T. Woodhead, divisional clerk, Huddersfield.

Huddersfield.—July 13.—For the various works required in erection of a new school, boundary walls, drainage, and out-buildings, at Woodhouse. Messrs. J. B. Abbey & Son, architects and surveyors, 34a New Street, Huddersfield.

Huddersfield.—July 14.—For alterations and additions at the Tramway Depôt, Great Northern Street, for the Corporation. The Borough Engineer and Surveyor, 1 Peel Street, Huddersfield.

Ipswich.—July 24.—For enlargement of the following schools, for the East Suffolk County Education Committee:—Hollesley Council School, near Woodbridge, by 60 places; Ramsholt Council school, near Woodbridge, by 28 places; Reydon Council school, near Southwold, by 60 places. Send applications immediately to Mr. J. Webb, surveyor, County Hall, Ipswich.

Ireland.—July 14.—For erection of new Orange and Protestant Hall, Donaghadee. Mr. C. A. Aickin, architect, 20 Rosemary Street, Belfast.

Isle of Wight.—July 10.—For erection of school buildings and offices at East Cowes, for the Isle of Wight County Education Committee. The County Education Offices, Newport, I.W., or at the office of the architect, 5 St. Thomas's Street, Ryde, I.W.

Isle of Wight.—July 11.—For erection and alteration of buildings at Roud Manor Farm, Godshill, in connection with the adaptation of the farm for small holdings, for the Isle of Wight County Council. Mr. S. E. Tomkins, architect, 42 High Street, Newport.

King's Lynn.—July 12.—For the following works, for the Corporation:—Repairs to house in Ferry Street, repairs at White House Farm. Mr. A. J. Smith, borough surveyor, Town Hall, King's Lynn.

Lancaster.—July 11.—For tiling and joiner's work in connection with the renovation of shop No. 15, in the Market, for the Properties Committee. The Borough Surveyor.

Leeds.—July 12.—For the conversion of stable buildings into offices and stores at the Receiving Home, Stanley House, Leopold Street, Leeds. Mr. J. H. Ford, clerk, Poor Law Offices, South Parade, Leeds.

Leeds.—July 13.—For extension of the Kirkstall Branch Library. Mr. W. T. Lancashire, city engineer, Municipal Buildings, Leeds.

Leeds.—July 17.—For the reconstruction of their sewage disposal works at Killingbeck, for the Leeds (Roundhay and Seacroft) Rural District Council. Deposit 5*l*. Mr. E. J. Silcock, M.I.C.E., 10 Park Row, Leeds, and Sanctuary House, 11 Tothill Street, Westminster.

Leeds.—July 20.—For erection of one hostel for women students at the City of Leeds Training College, Becketts Park, Headingley. Messrs. Percy Robinson & W. Alban Jones, architects, Albion Place, Leeds. Send in names, accompanied by £2 2*s*. deposit at once to Mr. J. Graham, secretary for Education, Education Department, Calverley Street, Leeds.

London.—July 12.—For repairs and painting at the Administrative Offices, 53 Clerkenwell Road, E.C., for the Guardians of Holborn Union. Deposit £1 1*s*. Mr. J. Allan Battersby, clerk, 53 Clerkenwell Road, E.C.

London.—July 17.—The Board of Management of the Central London Sick Asylum District invite tenders for painting and sundry other works at their asylums in Cleveland Street W., and in Colindale Avenue, The Hyde, Hendon, N.W. Deposit £3 3*s*. Specifications may be seen by appointment, and bills of quantities obtained up to July 12, from Mr. William Lockwood, architect, 12 Sherwood Street, Piccadilly Circus, W. (See Advertisement.)

London.—July 18.—For pulling down about 190 feet run of the existing boundary retaining wall, and the erection of a new brick retaining wall and other contingent works at the Council's Crouch End School, Park Road, Crouch End. The Borough Engineer and Surveyor, Municipal Offices, Highgate, N.

London.—July 20.—For the supply and erection in Vauxhall Park, on a foundation prepared by the Council, of an ornamental iron bandstand to accommodate 30 performers, at a total estimated cost not exceeding £200. Mr. Henry Edwards, C.E., borough engineer, Lambeth Town Hall, Brixton Hill, S.W.

London.—July 20.—For general repairs, improvements, and re-decoration at the North Lambeth Library, Lower Marsh, and at the Durning Library, Kennington Cross, for the Lambeth Borough Council. Mr. Henry J. Smith, town clerk, Lambeth Town Hall, Brixton Hill, S.W.

Manston.—July 11.—For the following works for new church at Manston, near Leeds:—Masonry, brickwork and plastering, &c., joinery, plumbing and painting, slating. Apply before July 11 to Messrs. Connon & Chorley, architects, 16 Park Place, Leeds.

Nottingham.—For the erection of Veterans' and Union Jack Club, Carlton Road. Send names and £1 1*s*. deposit forthwith to Mr. A. Marshall, architect, King Street, Nottingham.

Nuneaton.—July 26.—For the construction of additions to the engine house and the enlargement of the pumping well at the sewage pumping station, St. Mary's Road. Deposit £2 2*s*. Mr. F. C. Cook, borough surveyor, Council Offices, Nuneaton.

Old Basford (Notts.).—For alterations and additions to stores, for the Southwell Industrial Provident Co-operative Society. Send in names with a deposit of £1 1*s*. to Mr. W. V. Betts, architect, Bank Office, Radford Road, Old Basford, Nottingham.

Orrell.—July 14.—For erection of an elementary school for 480 scholars, at Orrell, near Wigan. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Paignton (S. Devon).—July 15.—For building a drill hall and offices for the Devon Territorial Force Association. Deposit £5 5*s*. Mr. F. A. Clark, architect, 83 Old Town Street, Plymouth.

Poulton-le-Fylde.—July 12.—For building a retaining wall in Church Street and Ball Street. Deposit 10*s*. 6*d*. Mr. J. B. Moss, surveyor, Masonic Buildings, Poulton-le-Fylde, Lancs.

Plymouth.—July 11.—For painters', carpenters', and other work at the almshouses, Heles Terrace, Prince's Rock. Mr. W. H. Davy, clerk to the Managers, Guardians' Offices, Greenbank Road, Plymouth.

Rochester.—July 19.—For the construction of an open-air swimming bath in reinforced concrete, 240 feet long by 60 feet wide, at their Playing Field, Willis Avenue, for the Sir Joseph Williamson's Mathematical School. Mr. William Banks, A.M.I.C.E., Guildhall, Rochester.

Scotland.—July 17.—For mason, carpenter, plumber, plasterer, slater, and painter work for Rectory, to be buil on Northfield Terrace, Elgin. Mr. R. B. Pratt, A.R.I.B.A., 110 High Street, Elgin.

Scotland.—July 10.—For additions and alterations to Lochee Branch Library, for the Dundee Town Council. Mr. Jas. Thomson, city architect, 91 Commercial Street, Dundee.

Seaton.—July 12.—For the erection of five pairs of semi-detached dwellings. Messrs. Donald & Donald, architects, 14 John Street, Workington.

Skipton.—For the various works required to be done i the erection of additions to Skipton auction mart. Mr. J. W. Broughton, architect, 19 High Street, Skipton.

Smalley.—July 10.—For the erection of the lower portion of a bell tower at Smalley Church, Derby. Send applications by July 10 to Messrs. Currey & Thompson, architects, 3 Market Place, Derby.

Stanley.—July 10.—For various works in proposed alterations, additions, &c., to the Workmen's Union Clu premises, High Street. Mr. J. J. Eltringham, architect Derwent Street, Blackhill, Durham.

Stockton-on-Tees.—July 11.—For the supply, delivery and erection of concrete foundations, building, and woodwork at the electricity works. Deposit £1 1*s*. Mr. J. J Smith, borough electrical engineer, Electricity Works, Stockton-on-Tees.

Summerseat.—July 12.—For certain alterations an additions to Summerseat House, Summerseat, near Bury Deposit 1*l*. 1*s*. The Education Offices, Deansgate Manchester.

Tow Law.—July 15.—For the enlarging of present reading room at the Mechanics' Institute. Mr. T. H. Potts secretary, Tow Law, Durham.

Truro.—July 10.—For alterations at Mill House Malpas Road, and other works connected therewith. Mr. F A. Barnes, A.M.I.C.E., city engineer and surveyor, Municipal Buildings, Truro.

Wales.—For erection of boiler house, two fives courts and general improvement to yards at the intermediate schoo (formerly county school), Merthyr Tydfil, for the Educatio Committee. The Deputy Surveyor, Town Hall, Merthy Tydfil.

Wales.—For the erection of 30 houses at Neath. Messrs S. Cym. Jones & Arnold, Great Western Chambers, Neath Glam.

Wales.—July 10.—For erection of vestry and class rooms and enlargement of chapel, for the Trustees of Carme (C.M.) Church, Abercrave. Mr. R. S. Griffiths, M.S.A. architect and surveyor, Tonypandy, or Mr. Rhys Davies Cefnymeusydd, Abercrave.

Wales.—July 12.—For alterations and additions to th Station Restaurant, Bargoed. Mr. Idris Leyshon, architect 7 Hanbury Road, Bargoed.

Wales.—July 17.—For erection of five pairs of semi detached cottage villas and 20 or more cottages, togethe with the construction of roads, sewers, &c., at Troedyrhiw for the Cwmdu Building Club. Mr. T. E. Rees, architect Merthyr Tydvil.

Walmer.—For the erection and completion of propose parish hall. Mr. C. L. Crowther, architect, Queen Street Deal.

West Hartlepool.—July 11.—For erection of offices fo Dock Master and H.M. Customs, for the North Eastern Rai way Co. Mr. William Bell, the company's architect, Yor or the Station Master's Office, West Hartlepool.

Whitby.—July 14.—For alterations and additions to th workhouse (whole tenders only). Mr. G. S. French, archi tect, Normanby Terrace.

Windsor.—July 22.—For the execution of work required to be done in alterations to the sanitary arrange ments at the Union workhouse at Old Windsor. The Maste of the Workhouse, Windsor.

Woodhouse.—July 13.—For the various works require in the erection of a school, boundary walls, drainage, an out-buildings, at Woodhouse, Huddersfield. Messrs. J. F Abbey & Son, architects and surveyors, 34a New Stree Huddersfield.

Workington.—July 12.—For the erection of a ridin school in Oxford Street for the Cumberland and Westmo land Joint Territorial Force Association. Send in name and addresses by July 12 to Messrs. W. G. Scott & Co architects, 2 Park Lane, Workington.

TENDERS.

ALPERTON (WEMBLEY).

For alterations and additions to the Alperton Council School, for the Middlesex County Council. Mr. H. G. Crothall, architect to the Education Committee.

Stewart	£10,998	0	0
Monk	10,940	0	0
Bollom	10,698	0	0
Tribe & Co.	10,520	0	0
Dickens	10,480	0	0
Neal	10,330	0	0
Rowley Bros.	10,100	0	0
Lawrence & Son	10,082	0	0
Knight & Son	9,977	0	0
Brand, Pettit & Co.	9,936	0	0
Mattock Bros.	9,927	0	0
Lacey (*recommended*)	9,747	0	0

BILLERICAY.

For erection of a nurses' home on the Workhouse premises. Mr. Hugo R. Bird, architect, Brentwood.

Harris Bros.	£850	0	0
Eglin & Co.	815	0	0
Brown	812	0	0
Burtwell	737	10	0
Trudgett	700	0	0
Selby	695	0	0
Jarvis, Brentwood (*accepted*)	693	0	0
Architect's estimate	770	0	0

CANNOCK.

For work to be done and materials supplied in connection with alterations and additions to the cottage homes, New Penkridge Road. Mr. H. M. Whitehead, engineer, Penkridge, Staffs.

Linford	£611	0	0
Holmes & Fletcher	591	0	0
Anderson	576	8	3
Reynolds	549	15	0
Williams	537	0	0
Kendrick & Son	531	0	0
Dorse	513	10	0
Sprenger, Penkridge (*accepted*)	499	10	0

CHELTENHAM.

For the erection of the manual instruction block at Naunton Park Council schools.

Capper	£604	12	0
Billings	477	0	0
Malvern	470	0	0
Collins & Godfrey	467	0	0
Kemp (*accepted*)	460	0	0

LONDON.

For extension to the South-Western Polytechnic Institute, Manressa Road, S.W. Mr. F. G. Knight, F.R.I.B.A., architect, 13 Victoria Street, Westminster, S.W.

King & Son	£14,769	0	0
Pasterfield & English	14,499	0	0
Bendon	14,460	0	0
Fletcher	14,141	0	0
Thomas & Edge	13,691	0	0
Roberts & Co.	13,599	0	0
Pattinson	13,566	0	0
Minter	13,479	0	0
Falkner & Sons	13,468	0	0
Chessum	13,354	0	0
Holloway	13,350	0	0
Fryer	13,300	0	0
Lole & Co.	13,247	0	0
Galbraith	13,199	0	0
Smith & Sons	13,100	0	0
Walter Lawrence & Son	12,970	0	0
Foster & Dicksee	12,933	0	0
Lovatt	12,890	0	0
Holliday & Greenwood	12,775	0	0

For the manufacture, supply, and erection of the overhead electrical equipment required in connection with the construction of tramways from Brixton to Herne Hill, for the L.C.C.

Blackwell & Co.	£2,462	11	8
The British Insulated and Helsby Cables	2,151	18	10
Clough, Smith & Co.	2,148	2	9
Dick, Kerr & Co., Abchurch Yard, E.C. (*accepted*)	2,093	10	9
Estimate of the chief officer of tramways	2,800	0	0

LONDON—*continued.*

For the supply of the air-compressors and lifting plant at L.C.C. tramways car-sheds.

Compressed air cleaning apparatus.

Alley & Maclellan	£1,934	0	0
Watlington & Co.	1,736	4	9
Tilghman's Patent Sand Blast Company	1,680	10	0
The Westinghouse Brake Company	1,563	10	0
Reavell & Co.	1,557	0	0
Globe Pneumatic Engineering Co., Queen Victoria Street, E.C. (*recommended*)	1,505	0	0

Lifting plant.

The East Ferry Road Engineering Works	£1,916	12	4
Heywood & Co., Reddish (*recommended*)	1,790	9	0
Alex. Chaplin & Co. (incomplete tender)	665	0	0
Estimate of the chief officer of tramways for the whole of the machinery	2,970	0	0

For the erection of a crusher and engine-house, fitters' shop, and a shed for the storage of cement at the Battersea Bridge tramways permanent-way depot.

Rowley Bros.	£1,976	0	0
Roberts & Co.	1,970	0	0
Wall	1,868	0	0
Holloway	1,850	0	0
J. & C. Bowyer, Ltd., Upper Norwood (*accepted*)	1,837	0	0
Architect's estimate	1,970	0	0

For the erection and equipment of an additional workshop, store, and offices, &c., at the Stockwell sub-station, for the L.C.C.

Leslie & Co.	£2,298	0	0
Johnson & Co.	2,031	0	0
Patman & Fotheringham	2,023	0	0
J. & C. Bowyer	1,867	0	0
E. Lawrance & Sons	1,859	0	0
H. L. Holloway, Deptford, S.E. (*accepted*)	1,818	0	0
Architect's estimate	1,938	0	0

For making borings in connection with the proposed north-eastern storm-relief sewer from Holloway to Shadwell.

Potter & Co.	£200	13	0
Isler & Co.	131	12	6
Tilley & Sons	108	17	6
Le Grand & Sutcliff, Bunhill Row, E.C. (*accepted*)	106	15	0

For erecting two iron buildings on the Trafalgar Square site, Stepney, for the L.C.C. Education Committee.

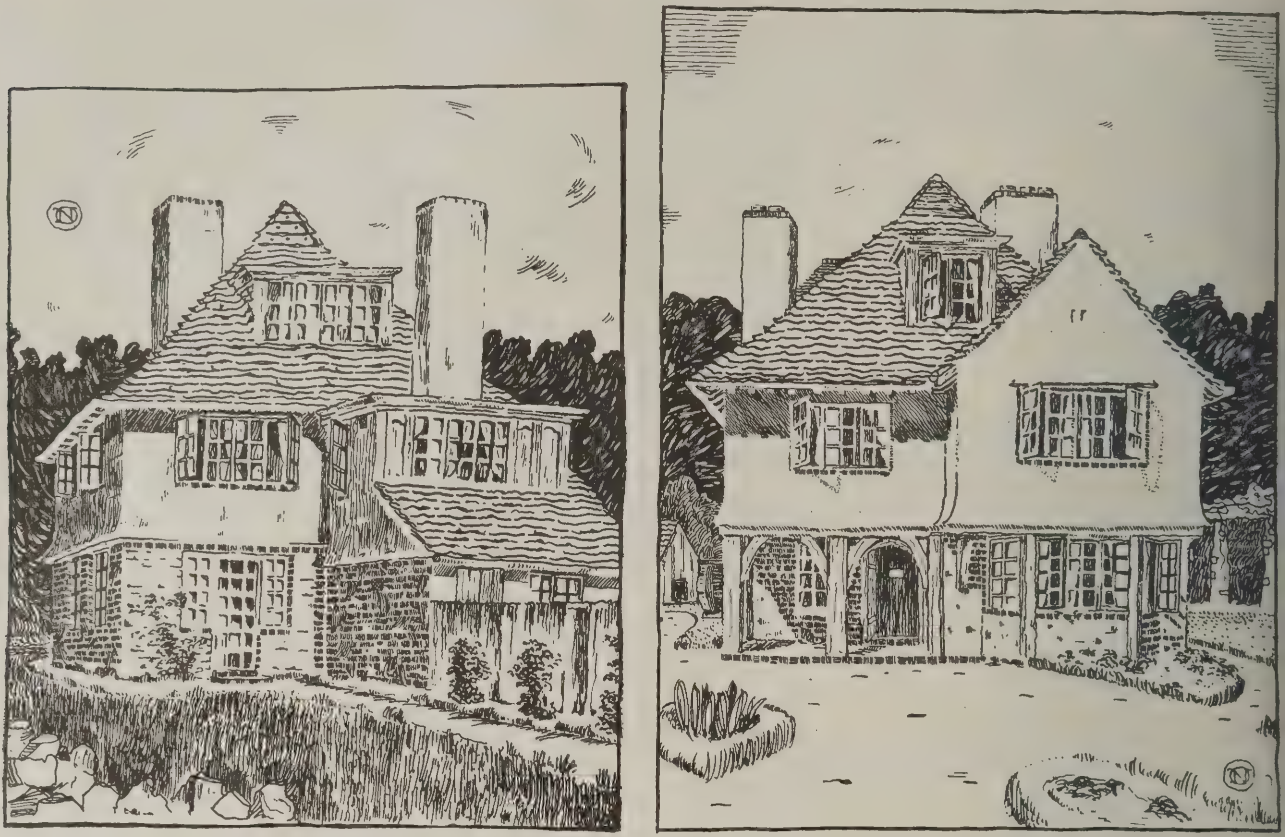
Humphreys	£877	0	0
McManus	870	0	0
Harbrow, South Bermondsey (*accepted*)	850	0	0

For the construction of subway and underground convenience at The Broadway, Hammersmith, W. Mr. H. Mair, M.I.C.E., borough surveyor, Town Hall, Hammersmith, W.

Johnson & Manners	£5,575	0	0
Wimpey & Co.	5,547	0	0
C. Ford	5,349	0	0
Bendon, Ltd.	5,300	0	0
Millman	5,200	0	0
A. Roberts & Co.	5,080	0	0
Paterson	5,036	6	10
Chessum & Sons	4,929	0	0
Jarman & Co.	4,863	0	0
C. P. Roberts & Co., Highbury, N. (*recommended*)	4,356	0	0

For erection of electricity sub-station at High Street, Wapping, Stepney, E., for Stepney Borough Council. Mr. W. M. Jameson, A.M.Inst.C.E., borough engineer, 15 Great Alie Street, Whitechapel.

Smith & Son (Norwood), Ltd.	£5,573	0	0
Braithwaite & Kirk	5,479	5	5
Johnson Bros.	5,364	0	0
Goddard, Massey & Warner, Ltd.	5,107	4	6
E. Lawrence & Sons, Ltd.	5,044	0	0
Wall, Ltd.	4,892	0	0
Dawnay & Sons, Ltd.	4,882	7	6
Chessum & Sons	4,853	0	0
Redpath, Brown & Co., Ltd.	4,658	12	1
Sands & Son, Ltd.	4,640	0	0
Kirk & Randall, Woolwich (*accepted*)	4,435	0	0



GARDEN FRONT. ENTRANCE FRONT.

BROADLANDS, FERNDOWN, NEAR WIMBORNE, DORSET.—Mr. H. BRYANT NEWBOLD, Architect. From Drawings by Mr. O. NEWBOLD.

NUNEATON.

For erection of children's home, for the Guardians. Mr. E. E. SHEPHERD, M.S.A., architect, Nuneaton.

Dallow & Sons	£1,750	0	0
Faulks	1,537	0	0
F. H. Smith	1,498	0	0
T. Smith	1,416	5	10
Sharpe	1,394	0	0
Kelley & Son	1,387	19	0
Hodges	1,385	0	0
Dorse	1,375	16	0
Roe	1,375	0	0
Cooper	1,325	0	0
G. E. & W. Wincott	1,316	14	9
Bedingham	1,308	0	0
Bradford	1,270	0	0
Whittaker	1,268	10	0

ST. AUSTELL.

For the erection of a new hospital.

Nicholls	£2,850	0	0
Colliver	2,786	0	0
Bennett	2,380	0	0
Lobb	2,368	0	0
Smith	2,367	0	0
Trask & Son	2,295	0	0
Richards	2,250	0	0
Carkeek	2,140	0	0
Architect's estimate	1,500	0	0

Consideration of tenders adjourned with a view to alteration in plans.

SCOTLAND.

For the erection of a sub-station at Downfield, for the Electricity Committee of the Dundee Town Council.

Accepted tenders.

Craig & Co., mason and brick work	£273	2	7
Scott & Son, joiner work	77	3	2
Potts & Son, plaster work	37	2	9
Keay, steel work	33	17	7
Laburn & Son, tile work	30	17	3
Dewar, plumber work	27	0	0
Robertson, painter work	6	1	0

STRATFORD.

For the erection of fire brigade quarters, Stratford, for the West Ham Town Council.

Leslie & Co.	£5,380	0	0
Chessum & Sons	5,207	18	3
McLaughlin & Harvey	4,995	0	0
Drever	4,843	9	0
Patrick	4,777	0	0
Perry & Co.	4,725	0	0
Moss	4,556	0	0
F. & E. Davey	4,500	0	0
Thomas & Edge	4,491	0	0
Fryde	4,490	0	0
Carter	4,425	0	0
Battley, Sons & Holness	4,380	0	0
Jerram	4,322	0	0
Roberts & Co.	4,290	0	0
Symes	4,247	0	0
F. & T. Thorne	4,225	0	0
Luton	4,190	0	0
Brown	4,136	5	3
HORSWILL, Forest Gate (*accepted*)	4,109	0	0
Brown	4,009	0	0

WALES.

For erection of the Welsh Baptist chapel and manse at Seven Sisters. Mr. J. S. GRIFFITHS, architect, Seven Sisters, Neath.

Gough Bros.	£2,219	0	0
Davies & Sons	2,120	0	0
Thomas & Sons	2,098	13	0
Turner & Sons	2,078	0	0
Williams	1,920	0	0
Jones & Jones	1,855	0	0
Rogers & Sons	1,853	0	0
Amended tenders.			
Rogers & Sons	1,808	0	0
JONES & JONES, Seven Sisters (*accepted*)	1,805	7	6

MESSRS. HUBBARD & MOORE, FF.R.I.B.A., announce that their partnership terminated on June 30, and that both Mr. Hubbard and Mr. Moore will continue to practise from their present address, 112 Fenchurch Street, E.C.

THE HALL BROADLANDS FERNDOWN
H·BRYANT NEWBOLD ARCHITECT ~ O NEWBOLD DE

THE BOARD OF EDUCATION AND EXAMINATIONS IN ART.

The Board of Education have for some time past had under their very careful consideration the examinations in art now conducted by them, together with the national competition and the conditions under which teaching certificates are given to qualified teachers of art. In an official circular issued this week they say the plan of applying a separate test to each of the numerous stages of a prolonged course of artistic studies is one which no doubt served a useful purpose during the initiation of a national system of education, but which under present conditions tends in certain respects to restrict unduly the development of Schools of Art, and to bring about a uniformity of method which is undesirable in view of the very different functions which the schools have to perform in different localities. The Board have, therefore, come to the conclusion that such stimulus and control as may be properly applied to the teaching of art by a central authority can best be exercised through the medium of visits of inspection, and that the duty of applying such examination tests as are suitable to the more elementary students should be undertaken by teachers of the schools themselves rather than by external examiners. They intend, therefore, in the near future to terminate the elementary examinations now conducted by them, as well as the minute sub-division of art studies for examination purposes, and to substitute examinations of a more comprehensive character adapted to the needs of students who have reached a fairly advanced level in their studies, and who may reasonably desire to have their individual progress tested in some such way as is open to students of other subjects by means of the various external examinations conducted by Universities and other bodies. The examinations on the present lines will, therefore, not be indefinitely continued, and a new scheme of examinations, of which details will subsequently be announced, will be brought into force in 1913. It is proposed to invite some teachers in schools of art to assist in the conduct of these examinations.

Similarly, the existing series of tests for art class teachers' and art master's certificates will be brought to an end in 1912, and new regulations will be issued for the award in 1913 and subsequently of qualifying certificates for teachers of art, upon conditions which will secure, in addition to high artistic attainments, the advantages of a general education and of a suitable course of professional training at some institution recognised by the Board for the purpose.

The merits and defects of the national competition have been the subject of much discussion in recent years, and the Board are satisfied that it may be capable of becoming more useful than at present for the purpose of affording an opportunity to the public of seeing the best work of which the most advanced students of schools of art are capable. They propose, therefore, to invite some experienced head masters of schools of art and others to consult with them as to the lines upon which a reformed competition can best be established. If a satisfactory scheme can be framed the Board will arrange a suitable place for the exhibition.

It is also hoped at an early date to effect some readjustment of the various scholarships and exhibitions for students of art which are now awarded or aided by the Board, so as to secure liberal opportunities of obtaining advanced instruction in art to intending teachers and other students throughout the country. In this connection the Board desire to give notice that the award of local free studentships will be made for the last time in 1911, for tenure during 1911-12, and that the award of local scholarships in art and the aid given to local exhibitions in art may not be continued, or may be continued under new conditions, after 1911, as may be necessary for the purposes of the readjustment contemplated.

Finally, the Board desire to make it known that, for the purpose of considering the methods whereby the policy indicated above and other reforms in artistic education can best be carried out, they propose to constitute for a term of three years from September 1, 1911, a Standing Committee of Advice for Education in Art, upon which their officers will have the assistance of eminent artists, including those appointed as professional examiners for the new examinations and as visitors to the Royal College of Art, of teachers in schools of art, and of manufacturers and others engaged in the industries most dependent upon art. It will be the first duty of this committee to assist the Board in working out the detailed schemes which will be necessary in order to carry out the changes foreshadowed in the present circular. The President of the Board has appointed the following to be the first members of the committee:—

E. K. Chambers, Esq. (Principal Assistant Secretary to the Board, to be Chairman of the Committee), Sir Edward J. Poynter (President of the Royal Academy), Sir Kenneth S. Anderson, K.C.M.G., Sir Charles Holroyd (Director of the National Gallery), Sir Cecil Smith (Director of the Victoria and Albert Museum), R. Blomfield, Esq., A.R.A. (Visitor for Architecture to the Royal College of Art), F. V. Burridge, Esq., S. J. Cartlidge, Esq. (Chief Inspector of Schools of Art), G. Clausen, Esq., R.A. (Visitor for Decorative Painting to the Royal College of Art), A. S. Cope, Esq., R.A., W. B. Dalton, Esq., R. G. Hatton, Esq. (President of the National Society of Art Masters), Professor Selwyn Image (Chairman of the Chief Examiners for Design, and Visitor for Design to the Royal College of Art), C. Napier-Clavering, Esq., H. J. Powell, Esq., S. J. Solomon, Esq., R.A. (Chief Examiner for Drawing), F. Warner, Esq., and F. Wedgwood, Esq.

A. H. Sidgwick, Esq., examiner under the Board, will act as secretary to the committee. The chief examiners for painting and modelling, and the visitor for sculpture and modelling to the Royal College of Art, who are not yet appointed, will also be members of the committee. Sir Edward Poynter and Mr. Cope have been nominated by the Royal Academy in response to an invitation from the President of the Board.

COMPETITION NEWS.

London.—Marylebone Borough Council are inviting designs for municipal buildings. The successful competitor will receive £300 forthwith, to be deducted from his commission when the work proceeds, and if the scheme should be abandoned or indefinitely postponed he will be paid a further sum of £300, and his drawings will become the property of the council. The other premiums offered are £100, £75, and £50. Mr. H. T. Hare, F.R.I.B.A., will act as assessor.

Salford.—The Board of Guardians decided last week to invite plans for the extension of the present office accommodation at Eccles New Road. Premiums of £20 and £10 will be awarded.

Scotland.—The Clydebank Town Council have adopted the recommendation of Mr. James Millar, A.R.S.A., their assessor, and adopted the plans submitted by Messrs. Gardener, Miller & White, architects, Glasgow, for the proposed public library. There were fifteen designs submitted in the competition.

BUILDING PROGRESS IN THE PROVINCES.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects, and others are invited to submit particulars for insertion in this weekly list.)

ENGLAND.

Cheshire.
Bickerton.—Baptistery font and stained glass windows to church. Mr. C. H. Minshull, architect.
Ellesmere Port.—Roman Catholic School. Mr. H. Beswick, architect.
Council school.
Hoole.—Council school. Messrs. John Davies & Sons, architects.
Queensferry.—Mixed and Infants' School enlargement.

Durham.
Durham.—Girls' Secondary School. The Education Architect.
Training College.

Essex.
Brentwood.—Girls' School.
Broomfield.—School (£4,470).
Burnham.—House in Brickfield Road.
Chelmsford.—Four cottages in Burgess Well Road.
Six houses in Rosebery and Vicarage Roads and Tower Avenue.
Dunmow.—Bridge over river at Aythorp.
Frinton.—Free Church.
Harlow.—Cookery and Handicraft Centre.
Sewerage scheme (£8,500). Mr. H. Tooley, engineer.
Langdon Hills.—School.
Rochford.—Workhouse extensions.
Romford.—Handicraft Centre.
Roydon.—Sewerage scheme (£6,200). Mr. H. Tooley, engineer.
Springfield.—Council School.
Tilbury.—Handicraft, Cookery and Housewifery Centre and Teacher's House (£2,496).
Tolleshunt D'Arcy.—Workmen's cottages (£1,200).
Witham.—Workmen's cottages.

Gloucestershire.
Ashton Keynes.—Village Hall.
Childswickham.—School enlargement.
Cirencester.—House for Earl Bathurst.
Kingswood.—School enlargement.

Hampshire.
Milton.—Hostel for girls.
Memorial Church (£10,000). Mr. J. Oldrid Scott, F.R.I.B.A., architect.
Portsmouth.—Electric Theatre in Fawcett Road.

Kent.
Bexley Heath.—Clock Tower (Coronation Memorial). Mr. Walter Epps, A.R.I.B.A., architect.
Chatham.—School in Ordnance Place.
Dartford.—Maypole School.
East Farleigh.—Fountain and drinking trough (Coronation Memorial).
Hempstead.—Council School extension (£2,250).
Lenham.—Sewerage scheme. Mr. Howard Humphreys, engineer.

Lancashire.
Haslingden.—Elementary School.
Manchester.—Queen's Theatre. Mr. Charles Swain, architect.
Warrington.—Elementary School.

Monmouthshire.
Llanhilleth.—London and Provincial Banking premises (conversion).
Risca.—Workmen's cottages.

Norfolk.
Aylsham.—Workhouse laundry and kitchen alterations (£2,300).
Barrow.—Village hall.
Cringleford.—Reading room.
Diss.—Water supply (£6,500). Mr. W. H. Booth, engineer.
Norwich.—Lakenham District Elementary School.
Middle School conversion into Council officials' offices (£4,000).
Wensum View Council Schools extension. Mr. C. J. Brown, architect.
Thorpe St. Andrew.—Sewerage scheme (£10,750).
Watton.—Infirmary. Mr. H. J. Green, architect.

Shropshire.
Wellington.—Workhouse additions and alterations. Mr. Marshall, architect.

Somersetshire.
Horfield.—Church and Rectory.
Taunton.—Askwith Memorial Church Day-School (£4,400). Mr. F. W. Roberts, architect.
Holy Trinity and St. Mary's Schools enlargement.

Suffolk.
Ipswich.—Sanatorium (£9,336).
Lowestoft.—Boys' School in Lovewell Road enlargement (£1,800).
Schools, Roman Hill.

Surrey.
Guildford.—Twenty cottages. Borough Surveyor.
Thorpe.—Nine cottages.
Witley Park.—Lodge for Lord Pirrie.

Worcestershire.
Upton-on-Severn.—Water supply (£1,300). Messrs. Wilcocks & Raikes, engineers. Messrs. Timmins, contractors.

Yorkshire.
Barlby.—Council School.
Batley.—Oakwell Hospital extension (£4,000).
Beverley.—Boys' School.
Bridlington.—Christ Church Parish Hall and Offices (£2,500).
Brough.—Police Station.
Golcar.—Knowle Bank School extension.
Ingbirchworth.—House.
Meltham.—Assembly Room.
Mirfield.—Church at Stocks Bank for the Community of the Resurrection.
Newmill.—Reservoir at Hade Edge (capacity, 1,181,250 gallons).
Rotherham.—Public Hall (£10,000).
Northfield Parish Hall (£800).

SCOTLAND.

Aberdeen.—Robert Gordon's College (E. wing) rebuilding (£6,000).
Lord Byron Statue. P. Macgillivray, R.S.A., sculptor.
Cruden.—Port-Errol School enlargement.
Cupar.—Lunatic Asylum extension.
Dalkeith.—Commercial Bank of Scotland (£2,000). Messrs. Mitchell & Wilson, architects.
Dunfermline.—Rosyth area town-planning, 2,461 houses (11.41 to the acre).
Edinburgh.—College of Agriculture extension (£48,000).
College of Agriculture seed-testing establishment.
Hostel.
Scottish National Gallery alterations (£11,000).
Glasgow.—Flats de luxe at Charing Cross.
Royal Exchange extension.
Langholm.—Water supply extension (£6,000).
Perth.—Drill Hall extension.
Strathbogie.—United Free Church.
Strathspey.—Masonic Temple at Grantoun.

WALES.

Abertillery.—Water supply. Mr. Baldwin Latham, engineer.
Great Ormes Head.—Chapel at St. Tudno's Cemetery.
Llandrindod Wells.—Pavilion (£6,000).
Llandudno.—Sewerage scheme (£7,500).
Soar.—Welsh Congregational Chapel.

The Lord Provost's Committee of Edinburgh Town Council approve of a recommendation that the site of the Corn Exchange in the Grassmarket be utilised as the site of the new Central Police Station. The cost of the proposed building is roughly estimated at £45,000.

The Swansea Housing Committee last week considered the question of acquiring 94¼ acres of land on the Town Hill estate, the property of the Duke of Beaufort. The chairman of the committee and the town clerk were empowered to treat with the Duke's agent.

The Electric Lighting Committee of the Dublin Corporation has received sanction of the Local Government Board for an immediate loan of £50,000 to carry out an extension of the Electricity Works. The total application was for £128,129, and the Board will give their decision as to the balance at a later date.

VARIETIES.

Mr. Alfred Drury, A.R.A., has been invited to submit a model for a standing figure of King Edward VII., which will be part of the Sheffield Memorial to his late Majesty.

The Croydon Borough Council has decided to co-operate with Lord Tenterden in his scheme for securing the Crystal Palace as a national memorial to King Edward.

Mr. G. Ogilvy Reid, R.S.A., is to be offered the commission to paint a decorative panel in the City Chambers, Edinburgh, dealing with local history.

The Bournemouth Town Council are considering a scheme for constructing an overcliff-drive at Southbourne. The borough surveyor estimates the cost at nearly £10,000.

The Bradford Town Hall Extension Sub-Committee recommend the Corporation to proceed with the scheme for linking up the new and old town hall at a cost of £6,500.

Messrs. Hukins & Mayell, architects and surveyors, have removed their offices from Bank Chambers, 76a Westbourne Grove, W., to 124 Westbourne Grove, W., after being over thirty years at the first-named address.

It has been decided to build a new mission-house and institute for the parish of St. Saviour with St. Thomas, Southwark, at a cost of about £3,000. The building is to be erected at the corner of Union Street and Red Cross Street.

The Royal Society of Arts have awarded silver medals for papers read during the past session to Mr. R. A. Smith, B.A., F.S.A., "Roman London"; Mr. Frank M. Andrews, "Architecture in America"; and Mr. R. Fellowes Chisholm, F.R.I.B.A., F.S.A., "The Taj Mahal."

A scheme for the extension of the Mill Dam Quay, South Shields, is under the consideration of the Market and Quays Committee of the Corporation. It is proposed to provide an additional frontage of 211 ft., making a total frontage of 346 ft. The estimated cost of the extension is £4,500.

At a recent meeting of the board of management of the Royal (Dick) Veterinary College, Edinburgh, it was intimated that the purchase of a site for new college buildings had been concluded. The cost of the new buildings, which will be commenced without undue delay, is estimated at £50,000.

The church of St. Peter, in Cricklewood Lane, Cricklewood, is to be completed by the building of the chancel, clergy and choir vestries, side chapel, and an addition to the nave at an estimated cost of £3,400. Building operations will be commenced almost at once.

During the past quarter eight new joint stock companies directly connected with building were registered in Scotland, and their combined nominal capital is £53,000. In the same period two companies concerned with plumbers were registered having a total capital of £25,750.

The Society of Proprietors of Royal Exchange Buildings, Glasgow, contemplate very considerable alterations to the Royal Exchange Building. It will, however, be necessary to obtain legal authority to alter the present constitution of the Society.

The Bolton Town Council have received the sanction of the Local Government Board to the borrowing of the following amounts for works in connection with Heaton Reservoir: £2,408 for filter house, mains and connection; £7,300 for mechanical filters; and £660 for Venturi meter and street works.

It is proposed to provide premises in which instruction in special subjects could be given to children attending the Longlands Council, Lamorbey Church of England, Sidcup Church of England, Footscray and Chislehurst Church of England, and Sidcup Hill schools.

The Aberdeen Byron Statue Sub-Committee have entered into an agreement with Mr. Pittendrigh Macgillivray, R.S.A., the sculptor, for the execution of the statue of Lord Byron. The statue, which will be in bronze, is to be 9 feet in height, and will stand on a granite pedestal 12 feet high, on a site within the grounds of the Grammar School.

The Kent Education Committee are going to provide a new department for 250 infants at Welling Council School. Their Works Sub-committee are experiencing great difficulty in obtaining sites for Council schools, and they "consider that it may be necessary to advise the committee to exercise their compulsory powers at Broadstairs, Tonbridge, and possibly in other cases."

The Bournemouth Town Council have been informed by the Local Government Board that they decline to sanction the borrowing of money by the Education Committee for the purpose of erecting a tower for the new science, art, and technical school. The committee consider that the tower is necessary from an architectural point of view, and are asking the Town Council to provide for its cost out of current revenue.

The Warwickshire Education Committee on the 4th inst. decided to give notice of their intention to provide a school accommodating about 100 children to serve the parish of Middleton; a new school accommodating 250, to serve the parish of Southam; a school accommodating 250 children at Wyken Colliery; and additional accommodation for 100 children at Warwick Coton End Council School.

The Birmingham City Council on Tuesday adopted a recommendation to carry out a further extension of the Council House and Art Gallery at an estimated cost of £53,350, and to borrow the sum of £18,377, the difference between the amount already sanctioned, viz. £150,000 and the estimated cost of the entire extension less the £50,000 receivable from the Feeney bequest.

Chester Town Council have decided to call in an expert to advise on a scheme submitted by Mr. Britton, their electrical engineer, for utilising the water power of the Dee for the generation of electricity. It is proposed to install three motor turbines at a cost of £10,000. The Council have also decided to prepare a scheme for the erection of a refuse destructor at the electric light works.

Our contemporary, *The Illustrated London News*, in its pre-Coronation number, dated June 24, has an excellent double-page pen and ink drawing by Mr. Harold Oakley. The drawing is a particularly clever one: the south walls of Westminster Abbey are left out so as to exhibit the interior arrangements and to represent the ceremony of the crowning of their Majesties the King and Queen.

Mrs. Pigott, the last lineal descendant of Sir Christopher Wren, died at Folkestone last week. The family of Sir Christopher ceased in the male line with the death of his great-great-grandson. The latter's daughter married Mr. Hopkins, and their daughter married the Rev. C. F. C. Pigott, who had no children. The deceased lady recently sold the interleaved copy of Wren's "Parentalia" to a group of gentlemen who presented it last week to the Royal Institute of British Architects.

The governing body of the West Cornwall Infirmary, Penzance, have received a cheque for £1,500 from Mr. R. F. Bolitho, of Ponsanooth. The donor says the money is to be devoted "towards the endowment of a bed, to be named 'The Oliver Caldwell bed,' in memory of the architect of the hospital, through whose loving care and supervision the town and neighbourhood generally has so greatly benefited by the eminent success which has followed its erection."

The New South Wales Works Department have accepted an order to supply 100,000 State-made bricks for sewerage works at 26*s.* per 1000, which is nearly £1 per 1000 below the prices asked by the private combine. It is anticipated that when the complete plant it is proposed to set up has been installed a further reduction of 7*s.* per 1000 will be effected, and when the clay, sand, and lime plants are complete the output will amount to 50 millions annually.

At the last meeting of the Stoke-on-Trent Board of Guardians the architect submitted a plan of a proposed fire station to be erected near the chapel at a cost of £300. The plan was passed, and will be forwarded to the Local Government Board. The architect also submitted sketch plan of the proposed children's pavilion, to be erected alongside the tennis court and bowling-green, in front of the school block. The total number of children provided for is 89, and the architect's estimate of the approximate cost is £5,000. The architect was instructed to prepare drawings to be submitted to the Local Government Board.

At the last meeting of the Middlesbrough Corporation Plans Committee, the borough engineer submitted seventy plans, embracing 166 different properties. In several of these very small bedrooms were provided for. The Acting Town Clerk reminded the committee that the Local Government Board had refused to give them power to regulate the size of rooms. Mr. Burgess, the borough engineer, mentioned that he had in preparation a town-planning scheme for the whole of the borough, under which, generally, there would be 100 feet depth of site for every house, and no back streets, the number of houses being limited to sixteen to the acre.

The General Steam Navigation Co., Ltd., are running their new steamer, *Golden Eagle*, or *Eagle* daily from London Bridge Wharf to Southend, Margate, and Ramsgate, and their turbine steamer *Kingfisher* also sails daily from Tilbury for either of those places named or Dover, while it takes passengers to Boulogne on Mondays and Thursdays. The same company have a number of excellent tours arranged with best hotels, full board and first-class steamer and rail for

Bordeaux, Ostend, Hamburg, Edinburgh, &c., and places of interest beyond or within easy reach thereof, at very moderate rates.

A MAN named John Henry Harman was sentenced last week, at Peterborough Quarter Sessions, to 15 months' imprisonment for defrauding builders. His custom was to write from a London address, asking builders to tender for erecting a house, and to send £1 1*s.* deposit for specifications. It was stated that four complaints had been received from Chelmsford, thirteen from Leicestershire, two from Stratford-on-Avon, one from London, five from Peterborough, two from Cambridge, and one from Hampshire. Prisoner in all sent out 186 circulars.

THE Master Masons' Association of Glasgow and Neighbourhood have intimated to the local branch of the United Operative Masons' Association of Scotland that they have resolved to grant the men's request for an increase of ½*d.* per hour on their rates of pay from to-day to June 30, 1912. The employers also intimate that they decline to introduce arbitration as proposed by the men's association into the agreement which has been drawn up between the masters and the men. They point out that any disputes which have arisen hitherto have been settled amicably between the two parties, and they think there is no necessity to depart from this policy. The men's association have signed the agreement.

IT is publicly announced that in consequence of the death of the late Sir John Aird, the businesses of Messrs. John Aird & Sons and the Westminster Construction Company, Ltd. (of which the late Sir John Aird was Chairman from its formation in 1899), have been amalgamated, and will in future be carried on under the registered style and title of "Airds, Ltd." There will be but little change in the management or staff. The Chairman of Airds, Ltd., is the present Sir John Aird, and the Managing Director Mr. Malcolm R. Aird.

THE Stoke-on-Trent County Borough Council are about to apply to the Local Government Board for sanction to borrow the following sums for the purposes specified, namely: Improvement, High Street, Hanley, £440; improvement, Oak Hill, £800; paving, Church Street, Longton, £500; storm-water sewer, Hanley Road, Hanley, £130; wood-block paving, Queen Street, Burslem, £1,575; wood-block paving, Market Place, Burslem, £1,400; reconstruction, Boothen Old Road, Stoke, £1,000; paving, Marsh Street, Hanley, £825; paving, Bethesda Street, Hanley, £1,100; paving, Leek Road, Hanley, £8,000.

A NEW infant school which has been added to the existing buildings in Brighton Avenue, Gateshead, was opened on June 26. The total expenditure on the building was £5,653, of which £1,000 was spent on the department for manual instruction. The expenditure per place was £11 10*s.*, compared with £11 13*s.* for the last similar school. The principal frontage is to Whitehall Road. The eight class rooms are grouped round a spacious central hall, with wing corridors. The building has been carried out from the designs, selected in open competition, of Mr. F. W. Purser, architect and surveyor, Gateshead.

THE Newcastle City Council recently considered the new proposals for the lease of 300 acres of the Corporation's Walker estate to Co-partnery Tenants, Ltd., at £30 an acre. Included is a proposal for the leasing of 50 acres at £250 per annum, the lessees undertaking to lay out and maintain two-thirds of the 50 acres as a park or open space in perpetuity. Other conditions were that the development of the estate should be on town planning lines, to the reasonable satisfaction of the local authorities; the width between front walls of houses being not less than 50 feet. On completion, the lessors to take over and maintain all roads as laid out. The scheme to provide for not exceeding fifteen houses to the acre. After a short discussion a vote resulted in twenty-six voting each way. The Lord Mayor said he had not voted in the first instance, and would not vote on the tie. The proposal was, therefore, not carried.

THE foundation stone has been laid of the chapel in connection with the National Nautical School at Portishead, near Bristol. The plan consists of a nave 63 feet long and 33 feet wide, with a narthex at the end 8 feet wide. The chancel will be 20 feet 6 inches long by 33 feet wide, with apse at east end 9 feet by 22 feet. There will be north and south transepts, organ chamber, and vestry, with heating chamber in the basement. The accommodation consists of sittings for 360 in the nave, 50 seats for visitors in the north and south transepts, and 25 seats for the choir. The height of the nave is 35 feet to the roof beam, the roof being of open timber construction. The materials are local stone for the facings and Bath stone for the dressings. The general contractors are Messrs. Samuel Martin & Co. of Bristol. The design for the chapel was prepared by Mr. Edward Gabriel, architect.

A DEPUTATION of the Beverley Town Council recently visited several places for the purpose of inspecting and obtaining information respecting the filtration of water by mechanical filters. They not only interviewed the water engineers, but obtained where it was possible information from the medical officer of health, so as to have independent information on which to base their conclusions. The subcommittee carefully considered the following processes, "Bell's," "Candy's," and "Mather & Platt's," and were unanimously of opinion that if the water obtained from the present source of supply be properly filtered by means of one of the standard makes of mechanical filters, all harmful bacteria, which might at any time infect the water, would be removed. The Town Council have therefore decided that tenders be invited for the installation of mechanical filters, and that plans and specifications be prepared forthwith, also that the work be carried out with as little delay as possible, and that foundations be provided at the same time in order that a softening plant may be erected in future if necessary.

THE BUILDING TRADE AND THE INSURANCE BILL.

IN the House of Commons on June 30 Mr. Lloyd George received a deputation from the national societies connected with the building trade and the London Building Industries Federation, representing altogether 170,000 operatives, to discuss suggested amendments to the Insurance Bill. The deputation, which was introduced by Mr. George Dew, the secretary of the London Building Industries Federation, asked, among other things, that there should be no deduction of contributions from the wages of workmen already insured through trade unions or friendly societies, that the benefits to workmen in the building trade should be the same as in the engineering trades, namely, 7*s.* a week, that the condition of a membership of 10,000 for an approved society should be modified, and that non-unionists drawing benefits from the Labour Exchanges should be placed in the same relation towards members of an approved trade union as Post-office contributors to a friendly society. The deputation expressed the strongest objection to the recognition of employers' shops clubs. Mr. Lloyd George promised that the points brought before him should be carefully considered.

A MEETING of the Committee of the Building Trades Exchange for Glasgow and the West of Scotland appointed to consider the probable effect of the National Insurance Bill upon the building trade was held on the 15th ult. at 67 Hope Street, Mr. James Goldie, President, in the chair. A statement submitted by the Secretary showed that the Bill as at present drafted would be most injurious to the building trade generally. Coming at a time when the building trade throughout the country was in a most depressed condition, it was believed that the effect of the Bill would be to postpone for many years the improvement that builders had been hoping for. The meeting decided to communicate with the principal building societies in the country with a view to taking joint action in the matter, and if possible to present to Parliament a memorial embodying the many hardships that would be certain to follow upon the passing of the Bill.

TRADE NOTES.

WE are now informed that the Anglo-American Oil Company's Offices in Queen Anne's Gate, which have recently been built by Messrs. Holloway Bros., are constructed in Portland stone partly supplied by the Bath Stone Firms, Ltd., from their famous quarries at Combefield.

THE "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air inlets, has been applied to Cynlais School, Ystradgynlais.

MESSRS. EDEY & Co., electrical engineers, of 25 Warwick Lane, Ely, have registered their business as a limited liability company, the two present partners becoming the first two directors. The same personal attention will thus be given as in the past.

MESSRS. KEITH & BLACKMAN, High Street Foundry, Arbroath, having completed the negotiations for the purchase of property between Applegate and Lordburn for the purpose of extending their works, it is understood that plans are to be submitted to the Dean of Guild Court for the erection of a brass foundry. The extensions will constitute a large addition to the works of the firm, and will mean the employment of over 150 additional men.

THE

Architect and Contract Reporter.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

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EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

COMPETITIONS OPEN.

AUSTRALIA.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

ATHENS.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l*. A first prize of 800*l*., and a second prize of 320*l*. will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

EGREMONT.—Aug. 8.—The Urban District Council offer premiums of £40 and £10 for a scheme to lay out, under the Housing of the Working Classes Act, building sites at Egremont and Bigrigg. The Egremont site consists of 1 acre, 1 rood, 16 poles, and the Bigrigg site 3 acres, 1 rood, 28 poles. Further information may be obtained from the Surveyor, Town Hall, Egremont, Cumberland.

LONDON.—July 31.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1s., which will be refunded on receipt of a bona-fide design or return of conditions within one month of receipt. All questions must be sent not later than July 31 to Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

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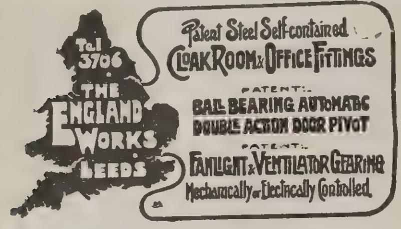
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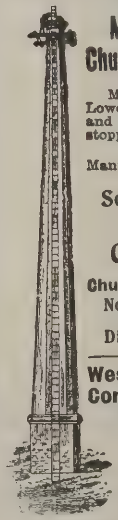

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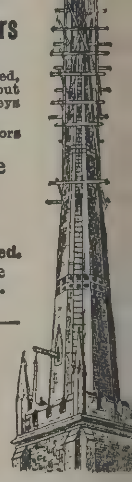

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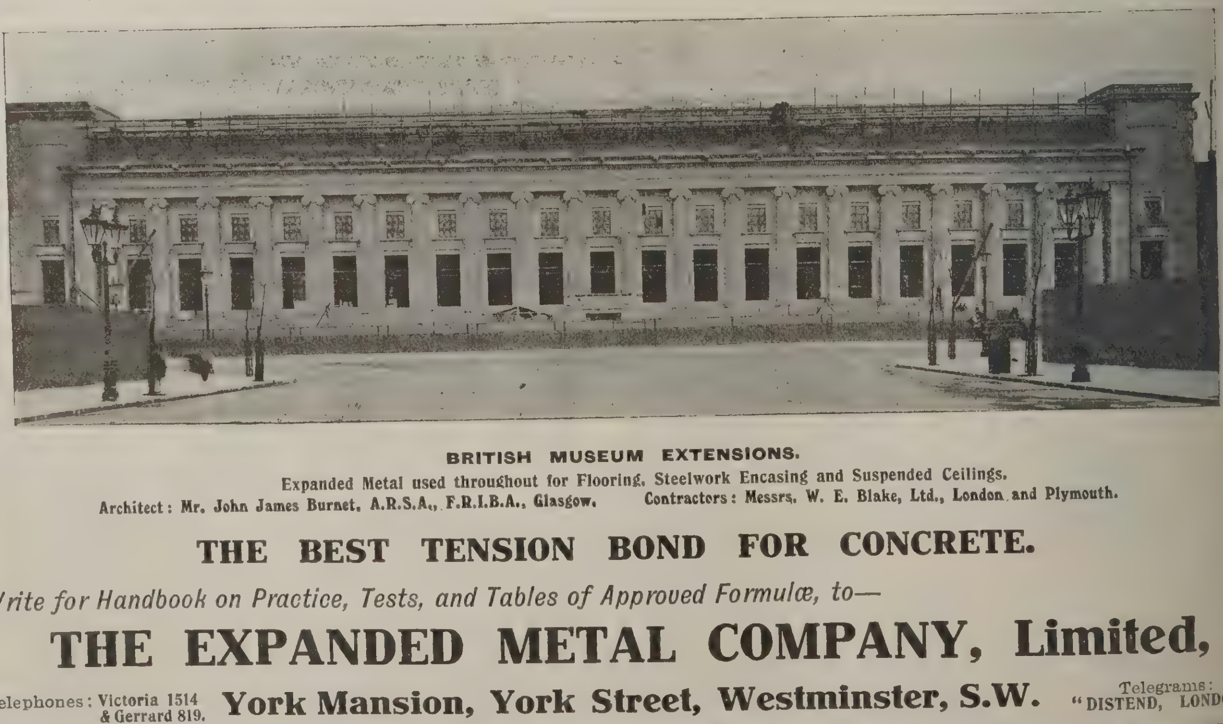

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SCOTLAND.—Aug. 1.—The Committee of the Battle of Largs Memorial Fund invite sketches of a suitable memorial to commemorate the battle of Largs, 1263. The site of the memorial will be on the foreshore of Largs, but the exact position has not yet been determined. The committee have at their disposal the sum of 300*l.*, which is the maximum sum to be expended on the erection. A premium of 5*l.* will be paid for the successful sketch. The sketches will be judged by the subscribers. Mr. Peter Morris, Town Clerk, Largs.

CONTRACTS OPEN.

AMESBURY.—July 27.—For the erection of a county police station at Amesbury, Wilts. Deposit £2 2*s.* Mr. J. George Powell, county surveyor, Trowbridge.

ANDOVER.—July 24.—For alterations and new detached police quarters at Andover police station, Hants. Deposit £2 2*s.* Andover Police Station, and the County Surveyor, The Castle, Winchester.

BACUP.—July 18.—For the reconstruction of buildings, &c., at the Central Council Schools. Deposit £1. Mr. W. H. Elce, borough engineer, Municipal Offices, Bacup.

BARLBY.—July 22.—For the construction of a new pumping station for the Riccald Rural District Council. Deposit £5. Mr. E. J. Silcock, M.Inst.C.E., Sanctuary House, Tothill Street, Westminster, and 10 Park Row, Leeds.

BEESTON.—For the erection of a Catholic school. Mr. W. H. Herbert Marten, architect, 3 Cookridge Street, Leeds.

BENTLEY.—July 21.—For whole or separate tenders for the following works at Bentley New Council School, viz., builder, joiner, tiler, plumber, plasterer, painter, ironfounder, and asphalter, for the West Riding Education Committee. The Education Architect, County Hall, Wakefield, or the Divisional Clerk's Office, Doncaster. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

BEXLEY HEATH.—July 25.—For the erection of a clock tower in Market Place. Deposit £1 1*s.* Mr. W. M. Epps, architect, 8 Ethronvi Road, Bexley Heath.

BINGLEY.—July 15.—For the various works in erecting the Empress Picture Palace. Send names before July 15 to Messrs. Nunns & Bracewell, architects, Bank Chambers, Bingley.

BISHOP'S WALTHAM.—July 27.—For the following for the South Hants County Council: (1) Bishop's Waltham girls' and infants' school, sundry small alterations to school and offices, works of ventilation, repairs, and painting; (2) Bishop's Waltham boys' school, extension of class-room, sundry small works of alterations to offices, removal of gallery, painting, and repairs. Deposit £1 1*s.* each specification. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

BOGNOR.—July 18.—For the erection of twelve workmen's cottages in Sheepwash Lane. The Council's Surveyor, 66 High Street, Bognor.

BOLTON.—July 18.—For extensions to the Townleys Hospitals. Deposit 5*l.* Mr. J. Ward, architect, 24 Mawdsley Street, Bolton.

BOYLESTONE.—July 18.—For the erection of a cottage and alterations to farm buildings at the Myers Farm, Boylestone, for the Small Holdings Committee of the Derbyshire County Council. Mr. M. Hunter, architect and surveyor, Belper.

BRIGHTON.—July 21.—For the construction of an underground lavatory for ladies in Queen's Road. The Borough Surveyor, Town Hall, Brighton.

CAMBRIDGE.—July 17.—For the construction of a foldyard at the sewage farm, Milton Road. The Borough Surveyor, Guildhall, Cambridge.

CLIVIGER.—July 17.—For the erection of a county police station at Cliviger, near Burnley, Lancs. Deposit £2. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

CROYDON.—July 17.—For the builder's work necessary in the erection of a convenience for men and women at Frith Road. Deposit £1 1*s.* The Borough Engineer, Town Hall, Croydon.

DEVON.—July 26.—For the following work at council schools, for the Devon County Education Committee: Axminster, alterations to offices, water supply, painting, &c.; Brixham, Furzeham Hill, new heating chamber and work in connection with heating installation, &c.; Culmstock, alterations, additions, and repairs; Dawlish, new cloakroom, corridor, and ventilation, &c.; Exmouth (infants'), ventilation, &c.; Hemyock, alterations to offices, drainage, and water supply; Ide, new offices, drainage, &c.; Marwood, new cloakroom, and alterations and additions to offices, &c.; Paignton, Curledge Street, new cloakroom, corridor, work in connection with heating installation and sanitary work; Teignmouth, Shaldon, alterations and additions to offices, drainage, &c. The Architect's Office, 1 Richmond Road, Exeter.

DURRINGTON.—For the erection of a school at Durrington, Wilts. Deposit £1 1*s.* Mr. G. L. W. Blount, architect, 39 High Street, Salisbury.

EAST PECKHAM (KENT).—July 22.—For repairs at the teacher's dwelling house at the girls' council school. Mr. P. Golesworthy, correspondent, Ethel Cottage, West Malling.

EDINBURGH.—July 18.—For the mason, brick, joiner, plaster, plumber, and slater work in connection with the erection of a double cottage at Gladhouse Reservoir, for the Edinburgh and District Water Trustees. Mr. A. E. Horsfield, architect, 88A George Street, Edinburgh.

FARTOWN.—July 18.—For erection of two semi-detached houses in Skipton Avenue, Fartown, Yorks. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

FOWEY.—July 18.—For the erection of a goods shed at Fowey, Cornwall, for the Great Western Railway Co. The Engineer, North Road Station, Plymouth.

GARGRAVE.—July 17.—For the various trades required for alterations and additions at Gargrave Council (late Wesleyan) school, for the West Riding Education Committee. Mr. B. Thornton, Education Offices, Town Hall, Skipton.

GILLINGHAM.—July 20.—For erection of a chapel, Nelson Road, for the Trustees of the Primitive Methodist Chapel. Deposit 1*l.* 1*s.* Mr. E. J. Hammond, C.E., M.S.A., architect and surveyor, 21 Balmoral Road, Gillingham, Kent.

GREAT CROSBY.—July 26.—For the erection of a laundry centre on land adjoining the Halsall girls' school, Cooks Road, Great Crosby, Lancs., for the Halsall Education Foundation Trustees. Deposit £1 1*s.* Messrs. T. Mellard, Reade & Son, architects, 2 South John Street, Liverpool.

GREAT YARMOUTH.—July 21.—For the following work for the Education Committee, viz.: Alterations at Northgate infant school. The Borough Surveyor, Town Hall, Great Yarmouth.

HALIFAX.—July 17.—For the various works in connection with the erection of a covered stand at Thrum Hall football ground. Messrs. Hinchliffe & Co., architects, Tower Chambers, Halifax.

HENNOCK (DEVON).—July 19.—For the erection of a pair of semi-detached cottages and a shed at Tottiford in the parish of Hennock. Mr. S. C. Chapman, M.Inst.C.E., water engineer, Town Hall Chambers, Torquay.

HIGHWORTH.—July 18.—For erection of a house at Highworth station, Wilts., for the Great Western Railway Co. The Engineer at Bristol station.

IPSWICH.—July 24.—For enlargement of the following schools, for the East Suffolk County Education Committee:—Hollesley Council School, near Woodbridge, by 60 places; Ramsholt Council school, near Woodbridge, by 28 places; Reydon Council school, near Southwold, by 60 places. Send applications immediately to Mr. J. Webb, surveyor, County Hall, Ipswich.

IRELAND.—July 22.—For the erection and completion of school buildings at Wallace Avenue, Lisburn, for the Committee of Railway Street Presbyterian Church. Deposit £1 1*s.* Mr. S. C. Hunter, Scottish Provident Buildings, Belfast, or Mr. James Hunter, architect, Beechwood, Lisburn.

KEYNSHAM (SOMERSET).—July 18.—For certain alterations to the Workhouse for the provision of office accommodation. Mr. H. M. Bennett, surveyor, 36 Corn Street, Bristol.

KING'S LYNN.—July 22.—For alterations of the buildings at their Norfolk Street branch, for the Working Men's Co-operative Society. Send applications by July 15 to Mr. F. H. Hignell, secretary, Central Stores, Valinger's Road, King's Lynn.

Leeds.—July 17.—For the reconstruction of their sewage disposal works at Killingbeck, for the Leeds (Roundhay and Seacroft) Rural District Council. Deposit 5*l*. Mr. E. J. Silcock, M.I.C.E., 10 Park Row, Leeds, and Sanctuary House, 11 Tothill Street, Westminster.

Leeds.—July 20.—For erection of one hostel for women students at the City of Leeds Training College, Becketts Park, Headingley. Messrs. Percy Robinson & W. Alban Jones, architects, Albion Place, Leeds. Send in names, accompanied by £2 2*s*. deposit at once to Mr. J. Graham, secretary for Education, Education Department, Calverley Street, Leeds.

Lepton.—July 21.—For whole or separate tenders for the following works at Lepton new council school (builder, joiner, plumber, painter, plasterer, slater), for the West Riding Education Committee. The Education Architect, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Lisburn.—July 20.—For the following works, for the Urban District Council:—Contract No. 1: The work, material, and labour required in the construction and erection of a brick retort house, exhauster house, boiler house, meter house, and sundry plant foundations. Deposit £1 1*s*. The Town Clerk's Office, Town Hall, Lisburn, and Messrs. T. Newbigging & Son, engineers, 5 Norfolk Street, Manchester.

London.—July 18.—For pulling down about 190 feet run of the existing boundary retaining wall, and the erection of a new brick retaining wall and other contingent works at the Council's Crouch End School, Park Road, Crouch End. The Borough Engineer and Surveyor, Municipal Offices, Highgate, N.

London.—July 20.—For the supply and erection in Vauxhall Park, on a foundation prepared by the Council, of an ornamental iron bandstand to accommodate 30 performers, at a total estimated cost not exceeding £200. Mr. Henry Edwards, C.E., borough engineer, Lambeth Town Hall, Brixton Hill, S.W.

London.—July 20.—For general repairs, improvements, and re-decoration at the North Lambeth Library, Lower Marsh, and at the Durning Library, Kennington Cross, for the Lambeth Borough Council. Mr. Henry J. Smith, town clerk, Lambeth Town Hall, Brixton Hill, S.W.

London.—July 20.—For erection of a school at Rothschild Road, Acton Green, W., to accommodate about 860 scholars, for the Urban District Council Education Committee. Deposit £2 2*s*. Mr. F. A. Everitt, secretary, Education Department, Acton, W.

London.—July 25.—For preparing and painting the whole of the external ironwork of the workhouse in Endell Street, also of the Guardians' offices and the Receiving House for Children and Nurses' Home in Broad Street, W.C., and for repairing the gutters thereof, for the Guardians of the Poor of the Parishes of St. Giles in the Fields and St. George, Bloomsbury. Mr. J. Appleton, clerk, Guardians' Offices, 57 Broad Street, Bloomsbury, W.C.

London.—July 25.—For reflooring wards G1 and G2 at their infirmary, Brook Street, Kennington, for the Lambeth Board of Guardians. Deposit £2. Mr. J. L. Goldspink, clerk, Guardians' Office, Brook Street, Kennington Road, S.E.

London.—July 26.—For erection of lavatory accommodation and shelters at Wormholt Park, Hammersmith. Mr. H. Mair, borough surveyor, Town Hall, Hammersmith, W.

London.—July 26.—For erection of additions to boiler house at the Borough Electricity Works, Fulham Palace Road, Hammersmith. Mr. H. Mair, borough surveyor, Town Hall, Hammersmith, W.

Norman's Riding.—July 20.—For building a porter's lodge at the isolation hospital, Norman's Riding, Durham. Mr. H. Dalton, clerk, Blaydon-on-Tyne.

Nuneaton.—July 26.—For the construction of additions to the engine house and the enlargement of the pumping well at the sewage pumping station, St. Mary's Road. Deposit £2 2*s*. Mr. F. C. Cook, borough surveyor, Council Offices, Nuneaton.

Portsmouth.—July 19.—For works to be done and materials to be supplied in redecorating the interior of Blocks B and D at the Infectious Diseases Hospital, Milton. The Borough Engineer's Offices, Town Hall, Portsmouth.

Queensbury.—For the works required in the erection of a village institute at Mountain, Queensbury, Yorks. Mr. H. Hodgson, architect and surveyor Thorpe Chambers, Bradford.

Romford.—July 21.—For the execution of alterations at the Council Offices. The Surveyor to the Council, Market Place, Romford.

Rochester.—July 19.—For the construction of an open-air swimming bath in reinforced concrete, 240 feet long by 60 feet wide, at their Playing Field, Willis Avenue, for the Sir Joseph Williamson's Mathematical School. Mr. William Banks, A.M.I.C.E., Guildhall, Rochester.

Rotherham.—July 18.—For the extension of the school kitchen and erection of outbuildings to the caretaker's house at the Municipal High School, Middle Lane. Mr. J. Platts, High Street, Rotherham.

Rugby.—July 17.—For work at the Rugby and Dunchurch Agricultural Association and Horticultural Show, on August 16, viz.: (1) Haulage and materials, erecting entrance offices, turnstiles, pens, ground work &c.; (2) erecting grand stand (6 tier), 128 ft. long by 12 ft. wide, with cover; (3) erecting band stand for twenty performers with cover. Mr. P. Pallant, secretary and treasurer, 23 Albert Street, Rugby.

Scotland.—July 17.—For mason, carpenter, plumber, plasterer, slater, and painter work for Rectory, to be built on Northfield Terrace, Elgin. Mr. R. B. Pratt, A.R.I.B.A., 110 High Street, Elgin.

Sheffield.—July 17.—For works required to be done in connection with the following, for the Education Committee, viz.: (1) The Crofts council school, alterations for baths; (2) Sharrow Lane council school, alterations; (3) Huntsman's Gardens council school, alterations; (4) training college playing fields, Norton Woodseats, new pavilion. Also for the hot water supply and heating apparatus at No. 1. The City Architect, Town Hall, Sheffield.

Sicklinghall.—July 21.—For whole or separate tenders for the following works at Sicklinghall new school (builder, joiner, slater, plumber, plasterer, and painter), for the West Riding Education Committee. The Education Architect, County Hall, Wakefield, and the Divisional Clerk, Knaresborough. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Southampton.—July 21.—For building offices and stores at Southampton, for the County Territorial Force Association. Deposit £3 3*s*. Mr. R. H. P. Bevis, architect, Elm Grove Chambers, Southsea.

Southend.—July 17.—For erection of a convenience, shelter, and store at Woodfield Road Footbridge, Western Esplanade. Deposit £1 1*s*. Mr. E. J. Elford, borough engineer, Southend-on-Sea.

Torquay.—For building twelve houses in Torquay (labour only). All materials to be supplied by the owner. Messrs. Smith & Johnson, architects, 5 Union Street, Torquay.

Truro.—July 17.—For alterations and improvements to the practising schools at Truro. Mr. Sampson Hill, architect, Redruth.

Wales.—For the erection of a drill hall and caretaker's quarters at Aberdare, for the Glamorgan Territorial Force Association. Deposit £2 2*s*. Messrs. A. O. Evans, Williams & Evans, architects, Pontypridd.

Wales.—July 17.—For the erection of ninety-six cottages at Cwmcarn, for the Abercarn Urban District Council. Deposit £2 2*s*. Mr. J. Williams, engineer and surveyor, Abercarn.

Wales.—July 17.—For erection of five pairs of semi-detached cottage villas and 20 or more cottages, together with the construction of roads, sewers, &c., at Troedyrhiw, for the Cwmdu Building Club. Mr. T. E. Rees, architect, Merthyr Tydvil.

Wales.—July 18.—For the erection of a mixed and infants' school, to accommodate 650 children, at the Cwm Fields, Pontymoile, Pontypool, for the Monmouthshire Education Committee. Deposit £2 2*s*. Mr. J. Bain, County Council Offices, Newport.

Wales.—July 18.—For the erection of an additional unit at their Treforest refuse destructor, for the Pontypridd Urban District Council. Mr. J. E. Teasdel, engineer, Electricity Works, Treforest, Pontypridd. Send £1 1*s*. deposit to Mr. J. Colenso Jones, clerk to the council, Municipal Buildings, Pontypridd.

Wales.—July 19.—For erection of a public hall at Ammanford. Send application and £2 2*s*. deposit by July 19 to Mr. D. Thomas, architect, 10 Quay Street, Ammanford.

Wales.—July 21.—For rebuilding business premises at Beaufort Street, Brynmawr, for Messrs. Tierney & Scanlon.

Mr. Hy. Waters, architect and surveyor, Market Chambers, Brynmawr.

Wales.—July 21.—For the enlargement of the Alaw Council School at Trealaw, for the Rhondda Urban District Council. Send £2 2*s*. deposit to the Accountant of the Council. Mr. J. Rees, architect, Hillside Cottage, Pentre.

Wales.—July 22.—For the erection of a school-room, class-rooms, and vestries adjoining the Tabernacle (C.M.) Chapel, Garth Road, Bangor. Messrs. Cubitt & Manchipp, architects, High Road, Loughton, Essex, or Mr. W. Thomas, the hon. secretary, 298 High Street, Bangor.

Wales.—July 22.—For certain alterations and addition to the existing Calvinistic Methodist Chapel at Llangynog, near Oswestry. Mr. R. W. Davies, architect, Carno, Mont.

Windsor.—July 22.—For the execution of works required to be done in alterations to the sanitary arrangements at the Union workhouse at Old Windsor. The Master of the Workhouse, Windsor.

Wales.—July 24.—For removing the two galleries and replacing the floors at the Pentrepoeth infants' council school, Carmarthen. Mr. T. Walters, clerk, 31 Quay Street, Carmarthen.

Wales.—July 24.—For the following works at St.-y-Nyll, St. Brides-super-Ely, about 1½ miles from St. Fagans, for the Glamorgan County Council: (1) The erection of two cottages; (2) the adaptation of the existing farm buildings. Mr. W. E. R. Allen, deputy clerk, Glamorgan County Council Offices, Westgate Street, Cardiff.

Wales.—July 30.—For alterations and additions to Moriah Chapel, Treboeth. Mr. W. Matthews, architect, 151 Bryngelly Row, Treboeth, Glam.

Warrington.—July 21.—For the sanitary fittings and the cloak room fittings required for the Evelyn Street council school. Mr. T. A. Buttery, architect, Exchange Buildings, Queen Street, Morley.

West Kirby.—July 28.—For erection of high school for girls at West Kirby, Cheshire. Deposit £2. Mr. H. Beswick, county architect, Newgate Street, Chester.

Widnes.—July 24.—For the following works, for the Education Committee, viz.: (a) Removal of the gallery in the cookery department of the West Bank council school; (b) removal of the gallery in the infants' classroom at the St. Patrick's R. C. school; (c) alterations to the infants' latrines at the Simms' Cross council schools; (d) repairs, colouring, cleaning and painting at the various council and non-provided schools. Mr. G. H. Danby, director and secretary, Education Department, Town Hall, Widnes.

TENDERS.

BRANDON.

For the construction of a road between Lobley Hill and the junction of Littleburn Lane, for the Brandon and Byshottles Urban District Council. Mr. Donkin, surveyor.

Henderson	£797	5	7
Sowerby	785	1	3
Carrick	689	16	6
Walton	673	10	0
I. & R. Wood	639	19	4
G. A. Reavell (*accepted*)	630	4	3

For the construction of a road between back High Street and back Littleburn Lane.

Sowerby	£703	12	4
Henderson	698	4	9
Carrick	585	6	4
I. & R. Wood	578	15	7
Walton	566	10	0
G. A. Reavell (*accepted*)	536	13	3

COUNTESSTHORPE (LEICS.).

For enlargement of Council school. Mr. E. G. Fowler, architect and surveyor.

Sleath	£875	0	0
Haycock Bros.	863	3	0
J. Chapman	844	0	0
J. A. Chapman	835	13	0
Sharp	834	10	0
Fox	788	0	0
Chitham & Co.	780	0	0
Potter, Blaby (*accepted*)	769	12	6

EAST PRESTON.

For additions and alterations to the laundry buildings at the Workhouse, East Preston (near Worthing).

Sumner Bros.	£494	15	0	£71	5	0
Hillman & Murrell	420	0	0	67	0	0
G. Gilham, Southwick (*accepted*)	285	0	0	68	10	0
Crane Bros.	203	1	0	84	18	0

EBBW VALE.

For the erection of institute buildings, with caretaker's cottage and boundary walls, &c., at Victoria, for the Committee of the Waunlwyd and Victoria Institute, Ebbw Vale, Mon. Mr. Fred. J. Veall, J.P., architect, Cardiff. Quantities by the architect.

Evans & Bros.	£3,095	0	0
Davies & Sons	3,049	0	0
Allan	3,025	0	0
Kirby & Westacott	2,950	0	0
Melhuish Bros.	2,950	0	0
Ebbw Valley Building Co., Ltd., Victoria, Ebbw Vale (*accepted*)	2,900	0	0
Knox & Wells	2,887	0	0
Herbert & Co.	2,885	0	0
Symonds & Co.	2,885	0	0
Colborne	2,848	0	0

EPSOM.

For the erection of new buildings at the Recreation Ground. Mr. E. R. Capon, surveyor.

	Pavilion.				Caretaker's Lodge.		
Freeman	£1,370	0	0	...	£653	0	0
Cropley Bros.	1,086	0	0	...	480	0	0
Roll & Taylor	1,085	0	0	...	469	0	0
Osman	1,048	10	0	...	420	15	2
Taylor & Blofield	1,045	0	0	...	485	0	0
Moxham	1,040	13	4	...	459	0	0
Pasterfield & English, Streatham (*accepted*)	998	0	0	...	445	0	

EXETER.

For alterations and additions at the Workhouse. Mr. R. M. Challice, architect, Exeter.

Brealy	£750	0	0
Sleeman	725	0	0
Westcott, Austin & White	720	0	0
E. H. Westcott	715	13	3
Setter	665	0	0
Castle	658	0	0

HITCHIN.

For the erection of shop and offices for Messrs. Moss & Sons in High Street. Messrs. George Baines & Son, architects, 5 Clement's Inn, Strand, W.C.

Estimate A.

Hurst	£3,370	0	0
Openshaw	2,980	0	0
Winter	2,920	0	0
Redhouse & Sons	2,912	0	0
Foster & Co.	2,890	0	0
Lawrence & Son	2,877	0	0
Battley, Sons & Holness	2,850	0	0
Jarvis	2,815	0	0
Collins	2,795	0	0
Newton	2,596	0	0
Willmott & Sons (*accepted*)	2,575	0	0

Estimate B.

Minter & Co.	£289	0	0
Lawrence & Son	281	0	0
Battley, Sons & Holness	268	0	0
Openshaw	260	0	0
Collins	235	0	0
Redhouse & Sons	230	0	0
Jarvis	230	0	0
Foster & Co.	225	0	0
Newton	211	0	0
Willmott & Sons (*accepted*)	207	0	0
Hurst	200	0	0

Estimate C.

Extra for five months' contract.

Jarvis	£100	0	0
Redhouse & Sons	100	0	0
Foster	100	0	0
Hurst	60	0	0
Battley, Sons & Holness	50	0	0
Minter & Co.	50	0	0
Newton	50	0	0
Lawrence & Son	45	0	0
Collins	40	0	0
Willmott & Sons (*accepted*)	25	0	0

GUILDFORD.

For alterations to Messrs. Timothy White Co.'s premises, 39 High Street, Guildford. Messrs. Rake & Cogswell, architects, Portsmouth.

Hoplett & Hammond	£679	0	0
Martin Wells & Co.	650	0	0
Jones	612	0	0
Tay & Co.	574	0	0
Ramsbotham	550	0	0
Privett	547	0	0
Smith	539	0	0
Billimore	530	0	0
Bullen	516	0	0
Tribe & Robinson	510	0	0
Johnson, Guildford (*accepted*)	505	0	0

IPSWICH.

For erection of a sanatorium. Mr. H. M. Cautley, architect, Ipswich.

Green	£10,250	0	0
Roper	10,248	0	0
Grimwood & Sons	10,243	0	0
Cubitt & Gotts	10,100	0	0
Bennett	10,060	0	0
Turner	9,992	0	0
Ward & Son	9,836	0	0
Kenney	9,679	0	0
Catchpole & Sons, Ipswich (*accepted*)	9,336	0	0

LANGLEY GREEN.

For the erection of a house at Bloxcidge Street, Mr. Abel Round, architect, Birmingham.

Dallow & Sons	£635	0	0
Lees	630	0	0
Jackson	610	0	0
Marshall, Smethwick (*accepted*)	597	0	0

LEWISHAM.

For constructing a lavatory and making the necessary alterations in forming additional office accommodation at the Town Hall, Catford. Mr. Ernest van Putten, borough surveyor.

F. W. Loasby, Hither Green, S.E. (*accepted*)	£410	0	0

LEYTON.

For constructing a condenser pit foundation for turbo-generators and cooling towers, &c., at the Electric Light and Power Station, Cathall Road. Mr. E. H. Essex, A.M.I.C.E., surveyor, Town Hall, Leyton.

Abbot & Charlton	£1,383	16	3
Lawrence & Sons	1,355	0	0
Luton	1,197	0	0
Moss & Co.	1,150	17	6
Fryd	1,108	0	0
Coxhead	1,018	0	0
Manders & Hill, Leyton (*accepted*)	952	4	5
Surveyor's estimate	1,017	0	6

LONDON.

For providing a weighbridge at the Greenwich Road permanent way depôt for weighing permanent way materials, sand for electric cars, &c., and another in place of an existing weighbridge at the Old Kent Road central stores depôt, in connection with the electric transport vehicles.

	Price of Machine for (1) Old Kent Road Depot.			Price of Machine for (2) Greenwich Road Depot.		
Bartlett & Son	£155	0	0	£139	0	0
Pooley & Son	154	0	0	140	0	0
W. & T. Avery, Cowcross Street, E.C.	142	0	0	122	0	0*
Day & Millward	140	0	0	145	0	0
Ashworth, Son & Co., Dewsbury	133	0	0*	130	0	0

* *Recommended.*

MANSFIELD.

For the provision of children's quarters and offices at the Workhouse, Stockwell Gate. Messrs. Vallance & Westwick, architects, Mansfield.

Ashley	£1,268	0	0
Evans	1,183	5	8
Vallance & Son	1,120	0	0
Greenwood	1,094	0	0
Percival	1,090	0	0
Beckett	1,045	0	0
Vallance & Blythe	1,022	17	6
Perks & Son	1,015	0	0
Moore, Mansfield (*accepted*)	999	0	0

MARKET HARBOROUGH.

For additions, &c., to Fairfield Road Council School.

Palmer	£718	0	0
Chapman	718	0	0
Haycock Bros.	690	5	0
Jarman & Sons	660	10	0
Potter	645	0	0
Fox	615	0	0

NUNEATON.

For extension of plant at the Sewage Pumping Station.

Engine and Pumps.

Waller & Sons	£3,008	0	0
Glenfield & Kennedy	2,175	0	0
Goddard, Massey & Warner	1,982	0	0
Tangyes	1,750	0	0
Galloways, Manchester (*recommended*)	1,723	0	0

Refuse Destructor.

Goddard, Massey & Warner	£905	10	0
Meldrum Bros.	796	10	0
Manlove & Alliott	787	0	0
Heenan & Froude, Manchester (*recommended*)	775	0	0
Dawson & Manfield	695	0	0

Lancashire Boiler.

Danks & Co.	£336	15	0
Adamson & Co.	327	0	0
Galloways	320	0	0
J. Thompson, Wolverhampton (*recommended*)	310	0	0

ROSS.

For restoration of the tower of Ross Church, Herefordshire, Messrs. Nicholson & Hartree, architects, Hereford.

Blackburn, Starling & Co.	£817	12	6
G. & W. Edwards	666	0	0
Lewis & Co.	642	0	0
Morris	598	0	0
Gold & Co., Stratford (*accepted*)	528	0	0

GILLINGHAM.

For carrying out the work of extending the Hempstead Council School. Mr. T. L. Redfern, A.R.I.B.A., surveyor to the Education Committee, Gillingham, Kent.

Phillips	£1,975	0	0
Skinner	1,797	0	0
Gates & Son, Frindsbury (*accepted*)	1,698	0	0
Surveyor's estimate	1,850	0	0

ST. BEES (CUMBERLAND).

For the various trades required in the erection of a house at St. Bees. Messrs. Nelson & Brindle, architects, Whitehaven.

Jas. Smith, Mason work, Egremont.
Jas. Lythgoe & Sons, Slaters, Workington.
R. Gamman, Plasterer, Whitehaven.
Wm. Strathern, Plumber, Whitehaven.
F. Walker, Heating Engineer, Workington.
R. W. Bonsey, Painter, Whitehaven.
T. & W. Robinson, Joiner, Egremont.

STOKE-UPON-TRENT.

For erection of infant school and enlargement of existing buildings at Goldenhill Council Schools. Messrs. A. R. Wood & Son, architects, Tunstall.

Yorke & Goodwin	£5,290	0	0
Ball & Robinson	5,275	0	0
Cooke	5,250	0	0
Godwin	5,250	0	0
Grants	5,184	0	0
Smith	5,177	0	0
Sambrook	5,100	0	0
Colclough & Breeze	4,942	0	0
Pemberton, Tunstall (*accepted*)	4,612	0	0

WALES.

For the erection of three shops, &c., at Abertridwr, for Senghenydd and Aber Valley Co-operative Society, Ltd., Abertridwr.

Hatherley & Co.	£2,719	0	0
D. Davies & Sons	2,530	0	0
Hamilton & Millard	2,375	0	0
Howells	2,357	0	0
Williams	2,300	0	0
Davies & Lloyd	2,289	0	0
Rossiter	2,250	0	0
R. Jones, Caerphilly (*accepted*)	2,089	0	0
Bristow	2,045	0	0

COMPETITION NEWS.

Hastings.—Conditions are in course of preparation for the proposed competition for plans for the King Edward Memorial Hospital.

Japan.—The "Bulletin Commercial" (Brussels) states, on the authority of the Belgian Consulate-General at Yokohama, that the Committee of the International Exhibition to be held at Tokio in 1917 have opened a competition for the general plan of the exhibition installations. One prize of 3,000 yen (about £306), two of 2,000 yen (about £204), and three of 1,000 yen (£102) may be given. Foreigners may compete. Proposals will be received up to September 30 next at the office of the Grand Japanese Exhibition, Department of Agriculture and Commerce, Kobikicho, Kyobashi-Ku, Tokio.

Newton Abbot.—The Seale-Hayne College authorities have received thirty-one plans in competition for the new college building, ranging in estimated cost from £19,000 to £23,000. Four of the plans were selected for further consideration. Mr. C. Steward Smith, J.P., F.R.I.B.A., of Reading, is the assessor. The premiums offered are £100, £50, and £30.

Whitley Bay.—The Whitley and Monkseaton Urban District Council recently invited architects practising in Northumberland and the city of Newcastle-on-Tyne to submit designs for the proposed cemetery buildings. The first premium of £21 has now been awarded to Messrs. Oliver Leeson & Sons, Newcastle; the second of £15 15*s.* to Mr. Edward Cratney, Wallsend-on-Tyne, and the third of £10 10*s.* to Mr. W. N. Scaife, Whitley.

Yeovil.—At the meeting of the Town Council on Monday the Borough Surveyor reported that in connection with the housing scheme there had been sent in for this competition 31 designs for laying out the land, and 61 designs of houses to be erected thereon. He had awarded the prizes as follows: —Laying out site of about ten acres: (1) £20, "Cottager"; (2) £10, "Castor and Pollux." Houses: (1) £20, "Castor and Pollux"; (2) £10, "Cottager." On the sealed envelopes being opened it was found that "Cottager" was the *nom de plume* of Mr. S. Alex. Wilmot, of King's Norton, and "Castor and Pollux" that of Messrs. Petter & Warren, Yeovil. The committee were of opinion that the land should be laid out on a scheme combining the best features of Nos. 1 and 2, and that No. 3 should be adopted for the houses.

THE LONDON HYDRAULIC POWER COMPANY AT ITS NEW PUMPING STATION, GROSVENOR ROAD, S.W.

The mass of those who benefit by the enterprise of this company doubtless give no thought to the labour and expense attaching to the provision of the hydraulic power, which forms such an important feature in the business life of the Metropolis. Not that the whole of this *imperium in imperio* is thus served; indeed, it has been urged upon the company that it should more strictly confine its area of supply—a matter whose decision can well be left to the efficient board of directors.

At present the mains, if laid in a straight line, would reach from London to Exeter; as it is, however, they are circumscribed by an imaginary irregular line, bounded on the north by the City Road, on the south by Vauxhall Bridge, eastwards by Limehouse and westwards by Earl's Court. In this area the company has five pumping stations, three being on the banks of the Thames and severally situated at Vauxhall, Southwark, and Shadwell, a fourth being erected at the City Road basin of the Regent's Canal, and a fifth lying at the Commercial Docks.

The latest station, now to be noticed, takes the place of one formerly situated at Millbank, but required for county improvements; the enforced removal has certainly been to the company's benefit.

The Grosvenor Road pumping station (entered from Pulford Street) is *le dernier cri*, the machinery being of the latest type and everything laid down with the view of obtaining the utmost efficiency, due regard being paid, too, to the use of labour-saving appliances. The responsible engineer is Mr. E. B. Ellington (Pres. Inst.Mech.E.), chief engineer and general manager. He took some pleasure in pointing out that he, too, was responsible for the architectural work (except as regards the foreman's lodge, for which Mr. Conder was the architect). Mr. Ellington deserves recognition for the studied simplicity of the design of the buildings, whose red brick facings with stone dressings have just the quality of constructive decoration that is so far preferable to decorated construction.

The following will serve to describe, not too diffusely, the most salient features of the station. Six large settling reservoirs of an aggregate capacity of 2¼ million gallons are supplied with Thames water at half-tide level (and retained by back-pressure valves) through 20 in. intakes. These reservoirs were built by the structural engineers (the Hydraulic Engineering Co., Ltd., Chester) on the Hennebique ferro-concrete system. But, shades of our ancestors! What would the past generation of architects have thought of reservoir party walls which, being 16 ft. in height, had a base thickness of only 12 in., battering to 8 in. at the top! Reinforced concrete, too, is used for the floor of the filter-house.

The reservoirs are cleaned out fortnightly, a head of water being obtained by gravitation from the overhead tanks to hydrants fixed for the purpose upon the communicating gangways. The wash-out pipes are 14 in. in diameter and discharge by outlet valves in the river opposite the company's wharf.

After the mud has been allowed to settle, the reservoir water is conveyed to three overhead tanks by the action of circulating pumps on the engines and by two auxiliary vertical direct-acting pumps. The tanks, situated over the filter-house, have an aggregate capacity of 900,000 gallons. The clearest water from the reservoirs is obtained by the presence there of swivel action suction pipes (connected to floats) resting at a level 12 in. from the surface of the water.

The unfiltered water gravitates into W.I. spherical filters, 8 ft. in diameter and sixteen in number. These were supplied by the Pulsometer Engineering Company, and space is left in the filter-house (which is situated over the capacious coal-store) for sixteen additional spherical filters. Each is capable of filtering 4,500 gallons per hour. The medium used is crushed quartz and washed and screened Thames ballast, and this is periodically cleaned by means of hydraulic blowers, eight in number. After filtering, the water gravitates to three storage tanks forming the roof of the boiler-house and being 10 ft. deep and of the same capacity as those above mentioned. All six tanks are built up of C.I. plates and are carried on mild steel girders and stancheons.

The water, freed from all undesirable particles (though, of course, far from pure hygienically) is conveyed by one 6-in. bore and two 8-in. bore pressure pipes to the company's network of distributing mains, the present supply being over 21 million gallons weekly, and actuating nearly seven thousand machines and over two hundred hydrants.

But to retrace our steps, mention will now be made of the boilers, four of these (all of the water-tube type) being at present installed, and space being left for an additional two. Each boiler is capable of evaporating 6,000 lb. of water per hour at a pressure of 180 to 200 lb. per square inch, superheated 100° to 120° Fahr. The feed-water, before being supplied to the boilers, is passed through Messrs. Bowes, Scott & Western's water-softening plant. The condensed steam from the engines, after being freed from oil by filtration, is measured in Lea recorders and passed into tanks, whence it is pumped into the boilers by means of horizontal direct-acting hydraulic feed pumps, each capable of delivering 2,000 gallons of water per hour.

The engines were supplied by the Hydraulic Engineering Company, of Chester; five are installed, one acting as a stand-by; space is reserved for an additional three. These engines are of the inverted triple-expansion surface condensing steam-pumping type, each one delivering at the rate of about 28,000 gallons hourly into the mains, at a pressure of 800 lb. per square inch. The steam pressure is 80 lb. They are of 300 h.p., contrasting with those in the Millbank station, which did not exceed 200 h.p. The coal, after being weighed and registered automatically, is discharged by bucket conveyors, either into one of the six compartments of the coal-store (capacity aggregating 1,000 tons) or else direct into the bunkers over the mechanical stokers in the boiler-house, being thence fed into hoppers, all manual labour being dispensed with. The three conveyor sets are driven by Pelton motors; and motors of this make also drive the tools in the workshop.

Exigencies of space preclude further description of a very interesting display of plant.

The Birkenhead Town Council have adopted plans and specifications for a Council school proposed to be erected in Temple Road with an accommodation for 1,092 children. The sanction of the Board of Education will have to be obtained.

BUILDING PROGRESS IN THE PROVINCES.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit particulars for insertion in this weekly list.)

ENGLAND.

BERKSHIRE.
Lambourn.—Tuberculosis sanatorium.
BUCKINGHAMSHIRE.
Buckingham.—Isolation Hospital.
Linslade.—St. Barnabas' Church memorial font.
CHESHIRE.
Neston.—Council School enlargement.
Northwich.—Outfall works extension and alterations (£4,400).
CORNWALL.
Bodmin.—Children's home for Board of Guardians (£500; 12 children). Mr. W. J. Jenkins, architect.
Camborne.—Wesleyan Conference Chapel (£1,000).
CUMBERLAND.
Penrith.—Grammar school.
DEVONSHIRE.
Dartmouth.—County School.
Ivybridge.—Vicarage.
DORSETSHIRE.
Poole.—Infectious Diseases Hospital additions and alterations (£2,000).
Toller Porcorum.—Water supply.
Verwood.—Conservative Hall.
DURHAM.
Brandon.—Hospital.
Hetton.—Good Templars' Hall.
House and stables in Dorset Street.
Twenty-six houses in Elemore and Murton Lanes.
Eight houses in Houghton Road.
Houghton-le-Spring.—Seven houses in Balfour and Glebe Streets.
Spennymoor.—Cottage at Whitworth Hall.
House in Green Lane.
ESSEX.
Braintree.—Coronation Open-air Swimming-bath (150,000 gallons; £500).
Brentwood.—Isolation Hospital.
Eastwood.—Three dairymen's houses and outbuildings (£1,000).
Rayleigh.—Church repairs, alterations and stained glass windows (£1,500 to £2,000).
Romford.—Sewage farm cottages.
Shoebury.—Waterworks extension (£2,000). Mr. Arnold Goodwin, engineer.
GLOUCESTERSHIRE.
Berkeley Heath.—Cottage farmhouse and several cottages.
Cirencester.—Cookery, housewifery &c. centre (conversion).
Hinton.—House.
HAMPSHIRE.
Milton.—Tuberculin Dispensary.
Tidworth.—R.C. Garrison Church for 500 soldiers (£1,400).
HEREFORDSHIRE.
Hereford.—County and City Asylum extension.
Secondary School for Boys. (Messrs. Wilks & Son, contractors.)
Public Secondary School for Girls.
St. Barnabas Mission Church.
Ledbury.—Handicraft and domestic subjects centre.
Leominster.—Secondary Schools additions (£2,800).
Wellington.—Council Schools additions.
KENT.
Ramsgate.—Lloyd's Banking premises. Mr. S. H. Page, F.S.I., architect.
LEICESTERSHIRE.
Market Harborough.—House in Newcombe Street.
LINCOLNSHIRE.
Woodhall Spa.—Home for gentlewomen.
MIDDLESEX.
Enfield.—Carnegie Public Library (£2,000).
Hanwell.—St. Joseph's R.C. Church extension.
MONMOUTHSHIRE.
Training College. Mr. F. Bond, contractor. (£28,248.)
NORFOLK.
Aslacton.—School alterations.
East Dereham.—Secondary School.
Lingwood.—School enlargement.
North Walsham.—Coronation drinking fountain.
Thetford.—Wesleyan Church enlargement and new vestry.
Tivetshall.—School offices.
SHROPSHIRE.—County Sanatorium.
Albrighton.—Sewerage scheme.
Dawley.—Water supply extension. Messrs. Stewart & Lloyd, contractors.
Ludlow.—House at Tinker's Hill.
Water supply (£3,600).
Wellington.—Co-operative Stores for the Oakengates and District Co-operative Society.
SOMERSETSHIRE.
Montacute.—Ten houses.
STAFFORDSHIRE.
West Bromwich.—Church.
SURREY.
Epsom.—Eighteen cottages.
Guildford.—Girls' County School.
Grammar School Gymnasium (£1,000).
Public Elementary School for 100 scholars in Peaslake District.
St. Martha's C.E. Schools additions and alterations.
Special subjects school centre.
Hersham.—School accommodation.
Leatherhead.—School.
Mitcham.—Central Fire-station.
Sub Fire-station at Collier's Wood.
Waltham-on-Thames.—School accommodation.
SUSSEX.
Bognor.—Artisans' houses.
Chailey.—Arts and crafts school for crippled boys and girls.
Hayward's Heath.—Cottage Hospital. Messrs. F. Wheeler & Godman, architects.
WARWICKSHIRE.
Hockley Heath.—Public Elementary School for 200 scholars.
WILTSHIRE.
Purton.—Drainage scheme.
YORKSHIRE.
Easingwold.—District water supply scheme. Mr. Fairbank, engineer.
Leeds.—G.P.O. structural additions (£15,000).
Middlesbrough.—Parochial Hall, Sunday Schools, Club Gymnasium and Class-room, and Vicar's Parlour at Linthorpe (£4,000).
Mossley.—Drill Hall.
North Newington.—Parsonage.

WALES.

Bedwellty.—Board of Guardians' offices (conversion).
Crickadarn.—Church restoration.
Wrexham.—Outfall works (£40,000).

SCOTLAND.

Arbroath.—Bakehouses for Arbroath Equitable Co-operative Society.
House in Bank Street.
Ballinluig.—Logierait public school additions and alterations (£1,000).
Buckhaven.—School at Aberhill. Mr. G. C. Campbell, architect.
Cardonald.—Double villa in Hillhead Road.
Cathcart.—Six tenements in Tulloch and Rannoch Streets.
Dundee.—Houses in Sandeman Street.
Office, warehouses, &c., in South Road Lochee.
Operating Theatre in Union Terrace.
Dunfermline.—Tenement of dwelling-houses in Townhill Road. Mr. A. T. McLeod, builder.
Carnegie free library extension.
Edinburgh.—Hall for use as childreu's church and juvenile temperance meetings (accommodation for 500 children).
Glasgow.—Deacons' Court of Battlefield United Free Church, beadle's house and offices; five houses in Ravenshall Road, Shawlands tenement of dwelling-houses in Hyndland Drive.
Johnstone.—Public slaughterhouse (£2,400).
Macduff.—Harbour extension [(*a*) £30,000; (*b*) £42,000]. Mr. Douglass, engineer.
Methil.—Customs House.
Peterhead.—Workmen's cottages. Mr. Stuart, architect.
Pollokshaws.—South Shawlands United Free Church and Church House and Hall.
Rutherglen.—Six double two-storey villas.

IRELAND.

Belfast.—Intercepting Hospital.

METAL PARTITION WALLS IN GERMANY.

It appears from a report to his Government by the United States Consul-General at Berlin that most of the inner partition walls used in buildings in that city consist of a heavy iron wire screen, on either side of which are layers of coke-ash mortar. The walls are apt to get out of plumb, and will not hold nails satisfactorily; and, as in making the mortar cattle-hair, jute, and hemp refuse are used, it sometimes disintegrates, causing the wall to crumble and sections to fall out. A good metal partition wall should therefore, says the Consul-General, find a market in Germany, provided that it was not too thick, and that the cost was not very much greater than that of the ordinary wall. Economy of space is looked for by the German builder. The authorities require that all outside and supporting walls shall have a thickness of at least 36 cms. (14.173 in.), and hence partition walls are generally limited in thickness to 10 cms. (3.937 in.), as they are not required to support great weights.

The coke-ash walls cost about 3.20 marks per square metre (about 2*s.* 8*d.* per square yard), but builders would pay more for a wall of satisfactory construction. Prices should be quoted in marks per square metre f.o.b. German port.

VARIETIES.

JOHNSTONE Town Council in committee have agreed to erect a public slaughter-house at the cost of £2,400.

THE Hull Corporation Hospitals Special Committee have decided to ask Mr. Hirst (the City Architect) to design the proposed new sanatorium for Hull.

THE will of Mr. John Wilson, of Osborne Road, Newcastle-on-Tyne, builder and manufacturers' agent, has been proved at £97,774 (net personalty, £3,678).

MR. FRANK BELLIS, architect, Bangor, has prepared plans for a workhouse infirmary to be erected for the Bangor and Beaumaris Guardians.

THE Building Act Committee of the London County Council have approved the plan of the addition proposed to be erected at the Thomas Street Council School, Limehouse, E.

AT the last meeting of the Darlington Town Council plans were passed for seventy-six houses to be erected in Brougham Street.

MR. W. H. BRIERLY, F.S.A., F.R.I.B.A., has been appointed consulting architect to the York Central Diocesan Fund Council in the place of the late Mr. Hodgson Fowler.

THE Wolverhampton Electricity Committee are asking the Town Council to sanction extensions at the generating station in Commercial Road at a total cost of £19,700.

THE Blyth Education Committee have decided to purchase an acre of ground at 5*s.* per square yard for a new school for 1,200 pupils.

MR. W. HAYNE, architect, Frinton-on-Sea, has prepared plans for a Free Church, proposed to be erected at a cost of £2,500 at Frinton-on-Sea, Essex.

THE Baths Committee of the Bristol City Council recommend that a site be purchased in the neighbourhood of Horfield and Ashley Down for swimming and slipper baths, and that the work of erection be undertaken as soon as possible.

THE Master Brick Builders of Glasgow District have granted an advance of a halfpenny per hour. The rate of wages to bricklayers will be 10*d.* per hour on and after to-day.

THE authorities of the University College of North Wales, at Bangor, have decided to proceed forthwith with the erection of the science section, and thus at once complete the whole scheme at a cost of nearly £200,000.

THE Leeds City Council last week defeated a proposal by the Tramways and Electricity Committee to purchase land and the buildings thereon for offices for the Tramway Department to a total of £31,550.

A COMPANY has recently been registered with a capital of £30,000 under the title of The Newcastle-upon-Tyne City Hall, Ltd. The object is to erect a large hall in that city for musical and other gatherings.

THE architect of the Stoke-on-Trent Education Committee has been instructed to prepare a scheme for the provision of a domestic centre in Glass Street, Hanley, and to submit the same at an early date.

A HUGE chimney stack, known as "the wonder," built 113 years ago, was demolished at Mountsorrel brickyard, Leicestershire, on Saturday. Its total weight was nearly 500 tons.

THE York City Council have decided in Committee to adopt a recommendation of the Tramways Committee to extend the system to Bishopthorpe Road and South Bank, at a cost of £16,440, and to Heworth, by way of Lord Mayor's Walk and Monkgate, at a cost of £25,263.

MR. A. CLIFFORD SWALES, of the Leeds City Engineer's Department, has been awarded the "Miller Prize," offered annually, in competition, by the Institution of Civil Engineers, for his paper entitled "Cement and Concrete."

THE "Feuille Fédérale Suisse" of June 28 contains a decree opening in favour of the Federal Council credits amounting to £33,480 for the purpose of enlarging the ordnance factory at Berne, and for its equipment with the requisite additional machinery.

THE Worthing Town Council have accepted the tender of Messrs. Mirless, Bickerton & Day, of Stockport, to supply additional plant at the generating station for £3,965. A Local Government Board inquiry is to be held shortly into the Corporation's application for sanction to borrow £4,950 for the purposes of the electricity undertaking.

THE *Oesterreichischer Zentral-Anzeiger* (Vienna) of June 15 states that plans have been drawn up for entirely rebuilding and extending the railway station at Böhmisch-Trübau. The cost of the undertaking is estimated at 15,000,000 kronen (£625,000), and the work will not be completed before next year.

THE Smethwick Education Committee have instructed the architect to prepare plans and specifications for a three-department school in the northern part of the district to accommodate 400 children in each department, together with manual training centre, dining room, and small room for the use of the school doctor.

PLANS for a new electric theatre to accommodate 1,000 adults have been passed by the Sunderland Building Committee. The building will be erected in South Villier's Street on a site now occupied by an old organ factory and other property. The plans were put in on behalf of Mr. T. H. Johnson.

SKETCH plans have been prepared by the Architects' Department of the London County Council for a proposed fire-station in substitution of the existing St. John's Wood station. The preliminary estimate of the cost of the building work, including electric lighting and incidental expenses is £13,000.

AT the ordinary monthly meeting of Newbigggin Council plans were submitted for ten aged miners' homes on North Seaton Links, sixty houses on North Seaton Links for Mr. J. Bell, a lecture hall behind the Wesleyan Church, fourteen houses on North Seaton Links for Mr. J. Saint, and six semi-detached villas on the Westfield estate for Mr. T. Field. Most of the plans were passed, that for the lecture hall and the six semi-detached villas being postponed.

THE Southport Corporation have entered into agreement with the Hesketh Estate for a right of way on the Hesketh sea embankment. Plans are also being prepared for the development of Ainsdale, and the laying-out of Lord Street under the Town Planning Act. The Borough Surveyor has been instructed to interview Mr. Brodie, the City Engineer of Liverpool, to discuss matters arising out of the Town Clerk of Southport's suggestion for the planning of greater Southport.

THE Manchester Corporation have under consideration schemes for the extension of the Municipal School of Art at an estimated cost of £4,000; the erection of furnished houses in Tebbutt Street, Rochdale Road, at a cost of £8,889; and the erection of cottage flats on the Barrack Street site at a cost of £16,545.

"A Text Book on Sewage Disposal in the United Kingdom," by Mr. H. Lemmoin-Cannon, P.A.S.I., with a foreword by Sir Alexander Stenning, is shortly to be issued. The author exhibits his deep interest in the work of the Benevolent Fund Committee of the Surveyors' Institution by dedicating a moiety of his profits on the sale of this book to the Fund under their charge. The book is intended for the student as well as the practitioner.

AT the last meeting of the Surrey Education Committee the tenders accepted included those of Messrs. J. W. Humphreys & Son, of Godalming, amounting to £162, for the erection of a workshop at Godalming School; of Messrs. Martin, Wells & Co., at £1,250, for carrying out alterations and additions to Lower Abinger School; and of Messrs. Millars Karri & Jarrah Co., at £124 15*s.* 6*d.*, for fencing the site of the Leatherhead School. Sanction was given to raising a loan of £5,320 for a new school at West Molesey.

The Isle of Man Harbour Commissioners have submitted to the Lieutenant-Governor a proposal for widening Victoria Pier, Douglas, to the extent of 15 feet for a considerable distance on the south side from the root of the pier. The idea is to carry out the widening by means of a neck carried on reinforced concrete piles, and it is estimated the cost will be £11,325. The widening will relieve traffic on the pier, which in the holiday season is very congested. The Commissioners have also submitted a scheme for a new pier 160 feet long at Port Erin, estimated to cost £8,500.

A new branch of the London, County and Westminster Bank, Ltd., has been opened in High Street, Maidstone. The general floor façade is carried out in Cornish granite, and the two upper floors in red brick with Portland stone dressings. The contractors were Messrs. Grummant Bros., of Ramsgate, who carried out the work according to the designs of Messrs. Reeve & Reeve, architects, Margate.

The ceremony of laying the four foundation stones of a new out-patients' department of the North Staffordshire Infirmary was performed at Hartshill, Stoke-on-Trent, on the 7th inst. The new extension is in course of erection in front of the existing hospital buildings. It will have two out-patients' entrances from Prince's Road, and will be provided with up-to-date medical, surgical, and ophthalmic departments. The cost of the work will be £35,000.

The Government of India have sanctioned the construction of a new Anglican church for the use of troops at Lucknow at an estimated cost of £8,400. The church is designed to contain 1,047 seats, and will consist of a nave 35 ft. by 108 ft., with north and south aisles, north and south transepts, and sanctuary. There will be a square west tower 73 ft. high. The design has been prepared by Mr. J. Begg, F.R.I.B.A., consulting architect to the Government of India.

A company has been formed for the purpose of constructing and carrying on a curling and skating ice rink in Edinburgh, on the site of the old Cattle Mart of John Swan & Sons, Ltd., Haymarket. The building will be the largest ice rink in the country, and possibly the second largest in Europe. The rink will have an ice surface of about 17,000 square feet. There will be no pillars on the ice surface—the steel girder roof, about 36 feet high, being thrown over the building in one span. The internal measurement of the rink is 220 feet in length by about 120 feet in width. The chairman of the company is Sir Archibald Buchan-Hepburn of Smeaton; the commercial managers, Messrs. R. & R. Anderson, Edinburgh.

The Essex County Council have adopted the report of a special committee which recommended:—(1) That a whole-time county architect be employed, at a net inclusive salary, to include the whole of the architectural work of the Council (including surveying work in connection therewith), and that he be provided with necessary staff, offices, office requisites, &c. (2) That it be referred to the Committee, in conjunction with representatives of the Standing Joint Committee, to carry out the foregoing recommendations, and to make all necessary appointments, including, if they think it desirable, the appointment of an assistant or assistants to undertake the work of quantity surveying. The Committee estimated that the cost of the proposed staff would be £1,600 per annum, in addition to which there would be travelling expenses, which at present amounted to a considerable sum.

Now is the time to see Stratford-on-Avon in all the glory of its natural beauty and visit Shakespeare's birthplace, Anne Hathaway's Cottage, and the many places of interest in the neighbourhood. The Great Central Railway is offering special facilities for an attractive day tour through Shakespeare's country, embracing Stratford-on-Avon, Warwick, Guy's Cliffe, Kenilworth, and Leamington by express train leaving Marylebone at 10 a.m., and on arrival at Stratford-on-Avon by private automobile to the places named. The tour covers 196 miles rail travel and 33 miles motor drive through typical English scenery and most historical country in less than nine hours, and passengers return to London before 7 p.m. The inclusive fare is 11*s*. 6*d*. Such a tour should not only appeal to visitors, but also to those residing in and around London who wish to see the Shakespeare country expeditiously and economically. The Publicity Bureau, 216 Marylebone Road, N.W., will send full particulars on application.

The new church of St. Mary Magdalene in Plymouth is to be erected at the end of Alvington Street according to the designs of Sir Charles Nicholson, of London. The firs
contract will, it is estimated, cost about three or fou
thousand pounds. The new church will abut on the end c
the existing church. The church is to be built of local stone
the floor will be of concrete, and a vaulted roof will b
sprung from granite pillars. Immediately above the scree
will be affixed a large oak crucifix. The dimensions of th
new church, not calculating the existing church, will be
South aisle, 79 ft. 6 in. by 21 ft.; nave, 60 ft. by 23 ft
6 in.; chancel, 34 ft. 6 in. by 23 ft. 6 in. When complete
the church will comfortably seat 700 people.

TRADE NOTES.

The new Isolation Hospital, Conway, is being warme
and ventilated by means of Shorland's patent Mancheste
stoves with descending smoke flues, patent Manchester grates
exhaust roof and special inlet ventilators, supplied b
Messrs. E. H. Shorland & Brother, Ltd., of Failsworth
Manchester. The Frickley Hospital, near Doncaster, i
being supplied with Shorland's patent Manchester stoves
with descending smoke flues. The new church schools
Worksop, are being ventilated by means of Shorland's paten
exhaust roof ventilators.

The Brilliant Sign Company (1907), Ltd., registere
offices, 38 Gray's Inn Road, London, W.C., have so increase
their trade with the Continent recently that, in order t
minimise the cost of production (saving duty, freightage
&c.), they have been compelled to build a factory at 5
Rempart du Lombard, Antwerp, and have recently installe
a large power press for the rapid production of their bri
liant letters in fancy designs, and suitable for the Continenta
trade. It will also enable them to more successfully intr
duce their specialities into France, Belgium, Germany, an
in fact the whole of Continental Europe. They have quit
recently arranged a partnership with a gentleman in Moss
Norway, for the development of their business throughou
the whole of Scandinavia. A stock of brilliant letters
value £500, has been laid down in Norway, and they ar
looking for a big volume of business from this territory a
a very early date. Catalogues are being printed in foreig
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range consists of an oven for roasting and baking, fitte
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a hot closet for keeping food warm, warming plates, o
for slow cooking, and is equipped with heating power neces
sary to do the cooking of an ordinary household. Th
hotplates and elements for oven are each provided with tw
heats; thus the temperature can be raised quickly and after
wards maintained at any lesser degree with the minimun
consumpt of current, thereby ensuring the utmost economy
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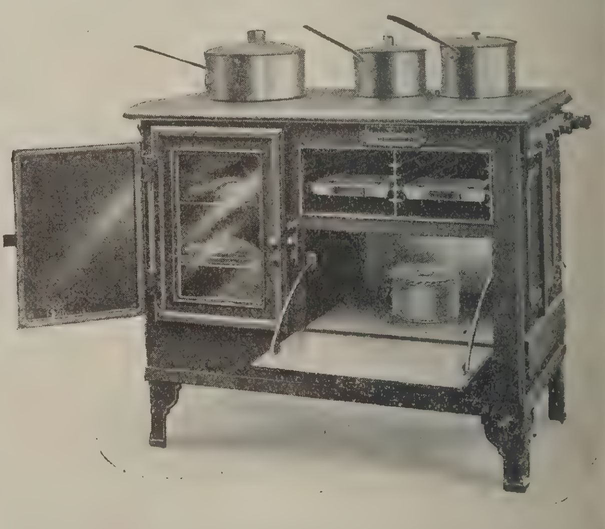
a minimum, and the unavoidable waste from the oven car
be utilised for simmering. The heating elements are s
arranged that they may be easily replaced at small cost
without returning the range to the makers.



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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC. 8 8

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Athens.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l.* A first prize of 800*l.*, and a second prize of 320*l.* will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

Egremont.—Aug. 8.—The Urban District Council offer premiums of £40 and £10 for a scheme to lay out, under the Housing of the Working Classes Act, building sites at Egremont and Bigrigg. The Egremont site consists of 1 acre, 1 rood, 16 poles, and the Bigrigg site 3 acres, 1 rood, 28 poles. Further information may be obtained from the Surveyor, Town Hall, Egremont, Cumberland.

London.—July 31.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1*s.*, which will be refunded on receipt of a bona-fide design or return of conditions within one month of receipt. All questions must be sent not later than July 31 to Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

Northwich.—Aug. 1.—The Urban District Council are prepared to receive names of architects willing to prepare plans for public baths (cost not exceeding £7,000). A limited number will be selected to compete. An assessor will be appointed and premiums awarded. Send applications, stating experience, by August 1, to Mr. J. Arthur Cowley, clerk, Council Offices, Northwich.

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HANDSOME CLOTH CASES for binding "The Architect." price 2/- each.

Scotland.—Aug. 1.—The Committee of the Battle of Largs Memorial Fund invite sketches of a suitable memorial to commemorate the battle of Largs, 1263. The site of the memorial will be on the foreshore of Largs, but the exact position has not yet been determined. The committee have at their disposal the sum of 300*l.*, which is the maximum sum to be expended on the erection. A premium of 5*l.* will be paid for the successful sketch. The sketches will be judged by the subscribers. Mr. Peter Morris, Town Clerk, Largs.

Skegness.—Sept. 5.—The Executive Committee invite architects to submit competitive designs and estimates for the proposed Cottage Hospital. Building to cost £900. Premium for design placed first, £15 15*s.* Designs to be sent in by Sept. 5 to Mr. W. W. Robinson, hon. secretary, Capital and Counties Bank, Skegness.

CONTRACTS OPEN.

Amesbury.—July 27.—For the erection of a county police station at Amesbury, Wilts. Deposit £2 2*s.* Mr. J. George Powell, county surveyor, Trowbridge.

Ashington.—July 31.—For proposed warehouse, fodder house, and other alterations, for the Ashington Industrial Co-operative Society. Mr. O. Blythe, architect, Ashington, Northumberland.

Barnfield.—July 25.—For erection of first portion of new church of St. Paul, Barnfield, Accrington. Apply by letter before July 25 to Mr. H. Ross, architect, 15 Cannon Street, Accrington.

Barrow-in-Furness.—July 27.—For erection and completion of a tramway waiting-room and convenience at Biggar Bank, Walney Island. The Borough Engineer's Office, Town Hall.

Beeston.—July 25.—For erection of new Catholic school at Beeston, Yorks. Mr. W. H. Herbert Marten, architect, 3 Cookridge Street, Leeds.

Belfast.—July 27.—For erection of two pavilions and additions to the diphtheria pavilion at the infectious diseases hospital at Purdysburn. Deposit £5 5*s.* (Messrs. Young & Mackenzie, architects, Scottish Provident Buildings.) Mr. Acheson Ferguson, quantity surveyor, Scottish Provident Buildings, Belfast.

Bexley Heath.—July 25.—For the erection of a clock tower in Market Place. Deposit £1 1*s.* Mr. W. M. Epps, architect, 8 Ethronvi Road, Bexley Heath.

Bierley.—July 25.—For the various works required in the restoration and enlargement of Bierley schools, near Bradford. Messrs. T. H. & F. Healey, architects, 42 Tyrrel Street, Bradford.

Bishop's Waltham.—July 27.—For the following for the South Hants County Council: (1) Bishop's Waltham girls' and infants' school, sundry small alterations to school and offices, works of ventilation, repairs, and painting; (2) Bishop's Waltham boys' school, extension of class-room, sundry small works of alterations to offices, removal of gallery, painting, and repairs. Deposit £1 1*s.* each specification. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

Boston.—July 31.—For alterations to premises, Bridge Street, Boston, for the Manchester Unity Lodge of Oddfellows. Messrs. Killingworth & Son, Dolphin Lane, Boston.

Bradford.—Aug. 1.—For the following roof work at the Esholt Sludge Disposal Buildings, for the Corporation, viz., Contract No. 15, joiners' work; (16) plumbers' work; (17) glaziers' work; (18) slaters' work; (19) painters' work. Deposit £1 1*s.* Mr. Joseph Garfield, Esholt Hall, Shipley.

Darite.—July 25.—For the carpentry of three dwelling houses. The Darite Co-operative Society, Darite, near St. Cleer.

Deal.—July 24.—For erection of an addition to the Hospital Hut at the Fever Hospital, Waterworks Road West. Mr. T. C. Golder, borough engineer and surveyor, 23 Queen Street, Deal.

Golcar.—July 26.—For the various works (except joiners') required in erection of a detached bungalow, Rob Royd, Wellhouse. Messrs. Lunn & Kaye, architects and surveyors, Milnsbridge and Huddersfield.

Great Crosby.—July 26.—For the erection of a laundry centre on land adjoining the Halsall girls' school, Cooks Road, Great Crosby, Lancs., for the Halsall Education Foundation Trustees. Deposit £1 1*s.* Messrs. T. Mellard, Reade & Son, architects, 2 South John Street, Liverpool.

Greetland.—July 26.—For the several works required in connection with the erection of a sprinkler tower at Prospect Mills, Greetland, near Halifax, for Messrs. G. Ingham & Co., Ltd. Messrs. Clement Williams & Sons, architects, Post Office Buildings, Commercial Street, Halifax.

Harold Wood.—July 25.—For the erection of dormitory buildings, convalescent home, Harold Wood, Essex, for the West Ham Town Council. Deposit £1. Mr. John G. Morley, borough engineer, Town Hall, West Ham, E.

Huby.—For erection of house at Huby, near Leeds. Send names to Mr. John E. Stocks, architect, 20 Park Row, Leeds.

Huddersfield.—July 25.—For the various works required in erection of additions to workshop, Paddock Head, Paddock. Messrs. Lunn & Kaye, architects and surveyors, Milnsbridge and Huddersfield.

Ireland.—July 29.—For the erection of a village hall at Broughshane. Mr. T. Houston, architect, Kingscourt, Wellington Place, Belfast.

Ireland.—July 31.—For the following works at Donnybrook, for the Pembroke (Ireland) Urban District Council: (*a*) Erection of eleven artisans' dwellings on Old Mill site; (*b*) erection of seventy-seven artisans' dwelling on Auburn Road site; (*c*) construction of roadways, concrete footpaths, with main sewers, water mains, &c., in connection with the above-mentioned artisans' dwellings; (*d*) installation of electric lighting in proposed new artisans' dwellings, and new streets in connection with same, on the Old Mill and Auburn Road sites. Deposit £1 per section. Mr. J. C. Manly, clerk to the Council, Town Hall, Ballsbridge, Pembroke, Co. Dublin.

Ireland.—July 31.—For erection of ten working-class dwellings and works in connection at Killiney village. Messrs. Millar & Symes, architects, 60 Dawson Street, Dublin. Deposit £1 1*s.* Mr. R. Cuningham, Town Clerk, Council Offices, Killiney.

Ireland.—Aug. 8.—For erection of new wagon and carriage shops at Inchicore, Dublin, together with other incidental works, for the Directors of the Great Southern and Western Railway (Ireland). The new shops will be in two blocks, one covering an area of 5,300 square yards, and the other an area of 6,765 square yards, and will be constructed of brick, with steel roof trusses carried on steel columns. Deposit £2 2*s.* The Company's Engineer, Inchicore, Dublin.

Kendal.—For the various works required in building Parish Church Hall adjoining the Parish Church. Mr. John Hutton, architect, Kendal.

Kendal.—For the various works required in building swimming bath, pavilion, and gymnasium at the Grammar School. Mr. John Hutton, architect, Kendal.

Knottingley.—July 24.—For erection of a house. Send names before July 24 to Mr. Henry R. Collins, architect and surveyor, Regent Street, Barnsley.

Littleborough.—July 26.—For erection of a branch shop and two dwelling houses at Centre Vale, for the Littleborough Co-operative Society, Ltd. Deposit £1 1*s.* Mr. H. H. Clough, architect, Butts Avenue, Rochdale.

Liversedge.—July 26.—For the erection of new stores in Frost Hill, for the Liversedge Mutual Co-operative Society, Ltd. Mr. H. Stead, architect, Heckmondwike.

London.—July 25.—For erection of a new swimming bath at Longfield Avenue, Ealing. Deposit £3 3*s.* Mr. C. Jones, M.I.C.E., borough engineer, Town Hall, Ealing, W.

London.—July 25.—For preparing and painting the whole of the external ironwork of the workhouse in Endell Street, also of the Guardians' offices and the Receiving House for Children and Nurses' Home in Broad Street, W.C., and for repairing the gutters thereof, for the Guardians of the Poor of the Parishes of St. Giles in the Fields and St. George, Bloomsbury. Mr. J. Appleton, clerk. Guardians' Offices, 57 Broad Street, Bloomsbury, W.C.

London.—July 26.—For erection of lavatory accommodation and shelters at Wormholt Park, Hammersmith. Mr. H. Mair, borough surveyor, Town Hall, Hammersmith, W.

London.—July 26.—For erection of additions to boiler house at the Borough Electricity Works, Fulham Palace Road, Hammersmith. Mr. H. Mair, borough surveyor, Town Hall, Hammersmith, W.

London.—July 27.—For construction of sundry buildings, roofs, bins for road materials, &c., at their depôt, Richmond Street, Edgware Road, for the St. Marylebone Borough Council. Mr. T. W. Aldwinckle, 20 Denman Street, London Bridge, S.E.

London.—Aug. 1.—For repairs, cleansing, painting, &c., to (1) infirmary, (2) workhouse, (3) offices, (4) schools, situate at Isleworth, Middlesex, for the Guardians of Brentford

Union. Deposit £2 2s. Mr. William Stephens, clerk, Union Offices, Isleworth, W.

Manchester.—July 26.—For the erection of a temporary library on the Old Infirmary site, Piccadilly. Deposit £1 1s. The City Architect, Town Hall.

Manchester.—July 26.—For alterations and additions to the reception wards at the workhouse at Crumpsall. Deposit 10s. 6d. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

Melcombe Regis.—July 24.—For the erection of a secondary school for 200 scholars in the Borough of Weymouth and Melcombe Regis. Deposit £2 2s. Messrs. Crickmay & Sons, architects, St. Mary Street, Weymouth, and Westminster.

Merton.—July 28.—For the following, for the Urban District Council:—(*a*) Erection of additional offices; (*b*) painting and decorating existing offices. Deposit £2. Mr. G. Jerram, surveyor, Council Offices, Merton, Surrey.

Newcastle.—For proposed new picturedrome and billiard hall behind Messrs. Marsden Bros., clothiers, High Street. Send names to Mr. H. Booth, architect, Haslingden, Lancashire, and quantities will be forwarded.

Nuneaton.—July 26.—For the construction of additions to the engine house and the enlargement of the pumping well at the sewage pumping station, St. Mary's Road. Deposit £2 2s. Mr. F. C. Cook, borough surveyor, Council Offices, Nuneaton.

Oldham.—July 26.—For builders' and steel work required in the construction of a new building and chimney for the grease disposal plant at the sewage works, Slacks' Valley. Deposit £1 1s. The Borough Surveyor's Office.

Oswestry.—July 29.—For the erection of ten almshouses and all work in connection therewith on land off Arundel Road, for the Town Council. Deposit £1 1s. Mr. G. W. Lacey, borough engineer and surveyor, Guildhall, Oswestry.

Patricroft.—July 31.—For alteration of the Eccles and Patricroft Hospital, Cromwell Road, and the erection of a new wing in extension thereof. Deposit £2 2s. Mr. John Knight, architect, Haworth's Buildings, 5 Cross Street, Manchester.

Pennington.—July 27.—For the rebuilding of farmhouse, also alterations and additions to farm buildings, at Holebiggerah, Pennington, Lancs. Messrs. J. W. Grundy & Son, architects and surveyors, Central Buildings, Ulverston.

Pocklington.—July 25.—For certain work in connection with the renovation of the Science and Manual Instruction Buildings. Mr. Thomas Robson, clerk to the Governors, Pocklington, Yorks.

Pontefract.—For the erection of fifteen loose boxes, three-stall stable, coach-house, &c., for Messrs. Beverley Bros., Ltd., Wakefield. Forward names to Messrs. Garside & Pennington, architects and surveyors, Pontefract and Castleford.

Radyr.—Aug. 9.—For the erection of a villa residence at Radyr, Glam., with garage, &c. Mr. W. H. Dashwood Caple, architect, 2 Church Street, Cardiff.

Ripon.—July 25.—For masons' and bricklayers' work required to be done in taking down the chimney stack at the old waterworks, near the North Bridge. Mr. M. Kirkley, town clerk, Town Hall, Ripon.

Scotland.—For mason and joiner work of proposed hospital at Cameron Bridge for the Town Council. Deposit £1 1s. Mr. W. D. Telfer, burgh surveyor, Buckhaven.

Selby.—July 29.—For the construction of eight cottages at the Depôt, Portholme Road. Mr. B. Gray, C.E., Council Offices, Selby.

Sellinge.—July 24.—For the execution of repairs, painting, and alterations to drains at the Sellinge Council School. Mr. W. J. Spicer, local clerk, 19 High Street, Ashford, Kent.

Sholing.—Aug. 2.—For the following, for the Southampton County Council:—(1) Sholing girls' school, sundry alterations to convert into boys' school; (2) Sholing boys' school, sundry alterations to convert into girls' school. Deposit £1 1s. for each specification. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

Stainland.—July 26.—For the various trades required in erection of a house and open cart shed at Stainland, near Halifax. Mr. L. Coates, A.R.I.B.A., architect, 10 Central Street, Halifax.

Starbeck.—July 25.—For erection of a church at Starbeck, Yorks. Mr. W. H. Herbert Marten, architect, 3 Cookridge Street, Leeds.

Thorne.—July 26.—For the builder's, joiner's and painter's work in connection with the repairs and improvements to be carried out at the Hatfield Levels Council School. Mr. E. L. Harrap, divisional clerk, West Riding Education Offices, Goole.

Thorpe.—July 24.—For the erection of nine artisans' dwellings in the parish of Thorpe. Deposit 10s. Mr. H. E. Paine, clerk, 80 Guildford Street, Chertsey.

Tipton.—July 26.—For the renovation of four Council schools and houses of two caretakers. Mr. E. Richards, secretary, Education Offices, Owen Street, Tipton.

Wakefield.—Aug. 1.—For pointing, &c., required to be done to the tower of the Town Hall. Mr. J. P. Wakeford, city surveyor, Town Hall, Wakefield.

Wales.—For the building of winding engine house, 60 ft. by 44 ft., at Swansea. The Gwauncae-Gurwen Colliery Co., Gloucester Chambers, Swansea, or Mr. G. S. Corlett, Wigan.

Wales.—July 24.—For removing the two galleries and replacing the floors at the Pentrepoeth infants' council school, Carmarthen. Mr. T. Walters, clerk, 31 Quay Street, Carmarthen.

Wales.—July 24.—For the following works at St.-y-Nyll, St. Brides-super-Ely, about 1½ miles from St. Fagans, for the Glamorgan County Council: (1) The erection of two cottages; (2) the adaptation of the existing farm buildings. Mr. W. E. R. Allen, deputy clerk, Glamorgan County Council Offices, Westgate Street, Cardiff.

Wales.—July 25.—For carrying out improvements to the following Council schools, for the Cardigan County Education Committee, viz., Adpar (Newcastle Emlyn) Council school, Brongest Council school, Penparc (Cardigan) Council school, and Verwig (Cardigan) Council school. The respective schoolmasters at the schools or Mr. G. Dickens-Lewes, county architect, Aberystwyth.

Wales.—July 25.—For erection of a new Primitive Methodist chapel at Cwmtillery. Rev. T. Mumphries, Bourne House, Somerset Street, Abertillery.

Wales.—July 26.—For the erection of a manse for the C.M. Church at Llanrhaiadr Mochnant, near Oswestry. Mr. R. W. Davies, architect and surveyor, Carno.

Wales.—July 27.—For erection of about twenty semi-detached villas at Penydarren, Merthyr Tydfil, for the Highmead Building Club. Messrs. Johnson & Richards, architects, Merthyr Tydfil.

Wales.—July 28.—For taking down old buildings and erecting a new chapel and schoolroom at Pisgah Baptist Chapel, Pyle. Messrs. Evans & Jones, architects, High Street, Port Talbot.

Wales.—July 30.—For alterations and additions to Moriah Chapel, Treboeth. Mr. W. Matthews, architect, 151 Bryngelly Row, Treboeth, Glam.

Wales.—Aug. 9.—For erection of a villa residence at Radyr, Glamorgan. Mr. W. H. Dashwood Caple, architect, 2 Church Street, Cardiff.

Walsall.—Aug. 1.—For construction of an underground convenience, The Bridge. Deposit £2 2s. The Borough Surveyor, Council House, Walsall.

Westerham Hill.—July 24.—For the erection of a cottage and other contingent works at Westerham Hill, Kent, for the Metropolitan Water Board. Send £1 deposit to the Accountant, Savoy Court, Strand, W.C. Chief Engineer's Department, Savoy Court, Strand, W.C.

West Kirby.—July 28.—For erection of high school for girls at West Kirby, Cheshire. Deposit £2. Mr. H. Beswick, county architect, Newgate Street, Chester.

Wistaston.—July 27.—For alterations and additions to the school buildings, Wistaston, near Nantwich. Deposit £1. Mr. H. Beswick, county architect, Newgate Street, Chester.

York.—July 26.—For alterations to the White Swan Hotel, Pavement, York. Send names by July 26 to Mr. W. Mortimer, architect, Lincoln.

Mr. T. Roddan Dent, who recently purchased Messrs. Craggs & Sons' shipbuilding yard at Middlesbrough, has definitely decided to dismantle the yard. The site will be cleared very shortly, and extensive alterations will be proceeded with.

Miss Stancomb Wills has intimated her intention of giving to the Bristol Grammar School £10,000 for the building of a science and art wing. Eighteen months ago a ground plan of a new wing was actually prepared, but as there were no funds available, nothing beyond the preparation of that plan was possible. Whether the scheme then drawn up will be carried out is uncertain.

TENDERS.

BROMHAM.

For work to be done at Bromham Council School, for the Wilts County Council. Mr. J. G. Powell, county surveyor.

Isley & Co.	£943	10	0
Gregory	936	0	0
Hoskins	882	0	0
Chivers	818	0	0
Blackford & Son	695	0	0
Stone	680	0	0
Ash	669	0	0
Parsons Bros.	657	0	0
Linzey (*accepted*)	595	0	0
Syms & Son	593	0	0

HOOKWOOD.

For the erection of a pair of cottages at Hookwood, near Horley. Mr. Blunden Shadbolt, Lic.R.I.B.A., architect, Horley, Surrey.

Mitchell, Horley	£300	0	0

IRELAND.

For the erection of a Carnegie Library in Lower George's Street, Kingstown. Messrs. O'Callaghan & Webb, architects, Dublin.

Plunkett	£4,847	2	6
Beckett	4,800	0	0
H. & J. Martin	4,289	0	0
Squire & Co.	4,255	18	11
Collen Bros.	4,200	0	0
Crampton	4,019	0	0
J. & W. Stewart	3,985	0	0
Hull & Co.	3,949	0	0
J. & R. Thompson	3,892	0	0
Dawling	3,879	0	0
J. & P. Good, Ltd., Dublin (*accepted*)	3,690	0	0

HARPENDEN.

For construction of sewerage and sewage disposal works, for the Urban District Council.

Higgs & Hill	£49,900	0	0
Muirhead & Co.	42,646	16	7
Brigg	42,082	4	4
Blair	40,250	0	0
Monk, Merwell & Co.	40,214	11	5
Wimpey & Co.	40,169	8	0
Wall	38,828	0	0
Mason	38,246	17	1
Johnson & Co.	38,119	0	0
J. & T. Binns	37,902	16	6
Pedrette	37,597	6	3
Willis & Powis	36,125	7	8
Godson & Sons	35,800	0	0
Johnson Bros.	35,168	17	1
Thompson & Co.	34,999	0	0
Allen, Fairhead & Sons	34,500	0	0
Inns & Co.	33,690	0	0
Holliday & Greenwood	33,552	10	0
Brebner & Co.	33,406	8	7
Underwood Bros.	33,402	18	7
Wallis & Sons	32,990	0	0
Moss & Sons	32,549	0	0
Wilson & Co.	32,000	0	0
Dickson	31,259	0	0
Bell & Sons	30,950	0	0
Davies	30,330	15	4
Price & Co.	30,236	5	2
Cooper & Co.	30,185	0	0
French	29,563	17	1
Southorn & Co., Leicester (*accepted*)	28,869	8	10

LONDON.

For the painting of the external wood and iron work at various fire-stations, for the L.C.C. The stations were divided into nine groups according to locality, and in the case of each group tenders were invited from five selected firms, except in group No. 9.

1. Battersea, Battersea (sub-), Battersea (river), Clapham, Vauxhall, Wandsworth, and Northcote Road fire-stations—

Maxwell Bros.	£189	0	0
J. & C. Bowyer	174	0	0
William Read	164	12	0
Triggs, Clapham, S.W. (*accepted*)	140	6	2
Architect's estimate	202	5	7

LONDON—*continued.*

2. Westminster, Bayswater, Notting Hill, South Audley Street (street), Chelsea, Fulham, Fulham (sub-), Kensington, Knightsbridge, North Kensington, Shepherd's Bush, Manchester Square, Edgware Road, Hammersmith, and Brompton fire-stations—

Minter	£490	0	0
Lole & Co., Chelsea, S.W. (*accepted*)	189	0	0
Architect's estimate	228	9	0

3. Charlton, Eltham, North Woolwich, Plumstead, Lee Green, East Greenwich, Rushey Green, Lewisham, and Shooter's Hill fire-stations—

Harry Groves	£177	10	0
Bailey	132	10	0
Scott Fenn	126	0	0
Proctor & Sons, Plumstead (*accepted*)	108	16	10
Architect's estimate	147	6	11

4. Deptford, Greenwich, Pageant's Wharf, Cherry Garden Street, Rotherhithe, and Spa Road (street) fire-stations—

Ernest Mills	£214	12	0
Holloway	206	0	0
Fred & T. Thorne	199	0	0
Proctor & Sons, Plumstead (*accepted*)	165	18	0
Architect's estimate	210	15	9

5. New Cross, Old Kent Road, Kennington, Peckham Road, Tooley Street, and Foxley Road fire-stations, and the chief station of the fire brigade—

F. & H. F. Higgs	£230	10	0
Parker & Sons	207	0	0
Higgs & Hill, Ltd., South Lambeth, S.W. (*accepted*)	203	15	0
Architect's estimate	184	3	5

6. Whitefriars, Clerkenwell, Scotland Yard, Waterloo Road, and Holborn fire-stations—

Ashby & Horner	£242	5	0
Grover & Son, New North Road, N. (*accepted*)	211	15	0
Architect's estimate	226	14	1

7. Great Marlborough Street, Kentish Town (11a Highgate Road), Holloway, Hornsey Rise, Islington, Hampstead, Hampstead (Holly Hill), Camden Town, St. John's Wood, West Hampstead, Euston, and Caledonian Road fire-stations—

Thompson & Beveridge	£136	10	0
Marchant & Hirst	123	16	0
Stevens & Sons, 33 Crouch Hill, N. (*accepted*)	116	18	6
Architect's estimate	139	2	9

8. Streatham, Sydenham, Tooting, West Norwood, Brixton, and Herne Hill fire-stations—

Johnson & Co., Wandsworth Common (*accepted*)	£58	2	0

9. Hackney, Poplar, Shoreditch, Wapping, Whitechapel, Homerton, Stoke Newington, Bishopsgate, Millwall, Shadwell, Burdett Road, and Bethnal Green fire-stations—

Thomas Brevertor, Savoy Mansions, Savoy Street, Strand, W.C. (*accepted*)	£32	4	2

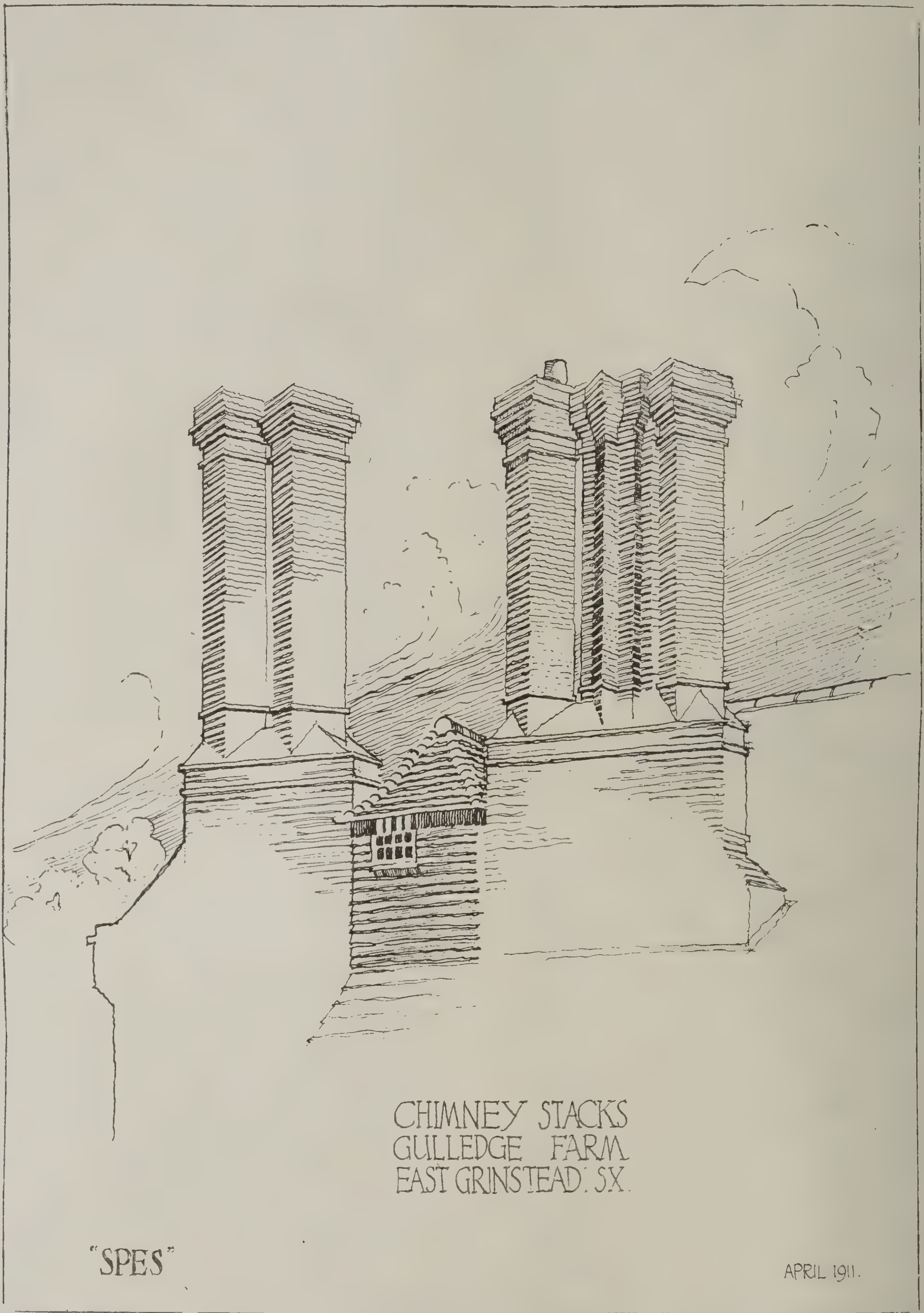
For the heating work in connection with the improvement of the Hammond Square School (Haggerston).

Stevens & Sons	£1,188	0	0
Wontner-Smith, Gray & Co.	1,028	0	0
Grundy	967	0	0
J. & F. May	900	0	0
Yetton & Co.	898	0	0
Cash & Co.	854	0	0
Cannon & Hefford	805	0	0
Cannon & Sons	766	0	0
Palowkar & Sons	763	0	0
Unsigned, 77 Lever Street	741	0	0
Tilley Brothers, 53 Kingsland Road (*recommended*)	717	11	6
Architect's estimate	850	0	0

For the erection of a factory at Pentonville, N. Messrs. Tasker & Wright, architects.

Todd & Newman	£2,048	0	0
Castle & Sons	2,020	0	0
Hunt & Son	2,015	0	0
Shurmur & Sons	1,971	0	0
Lawrence & Son	1,944	0	0
Mattock Bros.	1,907	0	0

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



The sketches herewith show a comparison between the chimney stack designed by an architect for a nobleman's house and a group of stacks by a local craftsman for a more humble dwelling. The stack from Kirby Hall, Northants, attributed to J. Thorpe, was built in 1573, and shows how the stately effect of a building may be enhanced by its stacks. The group of stacks from Gulledge Farm, near East Grinstead, shows the charm produced by the correct massing and distribution of simply treated brick chimneys.

LONDON—*continued.*

For the work of fitting up for seven special cubicles the room at Bruce House having a separate entrance in Kean Street, for the L.C.C.

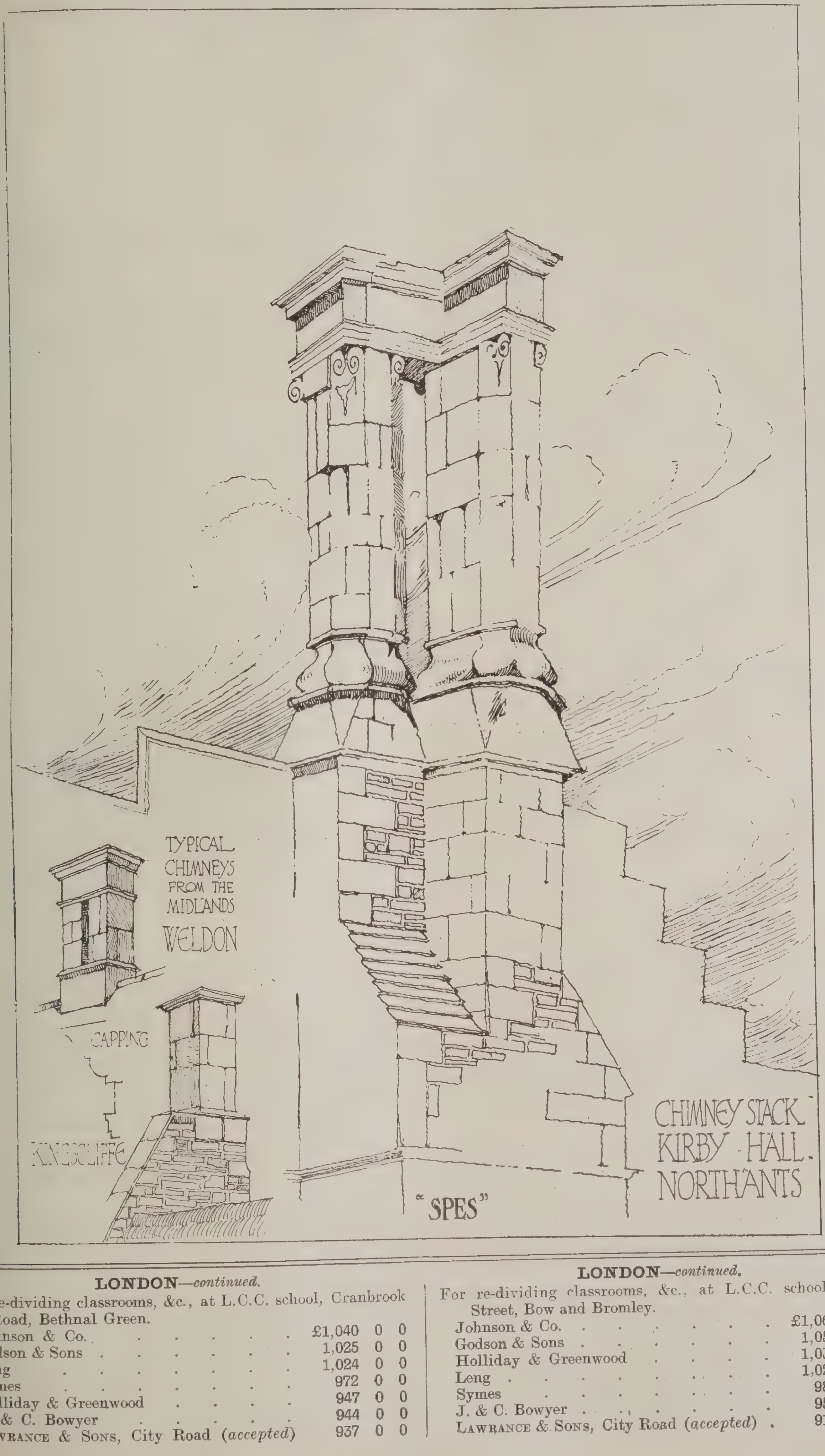
Holloway	£170	0	0
F. & T. Thorne	144	0	0
Rowley Bros.	143	0	0
Gathercole Bros., Norbury (*recommended*).	110	0	0

LONDON—*continued.*

For cleaning and painting St. Thomas's School, Stamford Hill. Mr. E. Bunce, architect.

Woodruff	£175	0	0
Pritchard & Son	124	0	0
Groves & Son	97	16	0
Shurmur & Sons	90	0	0

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.


TYPICAL CHIMNEYS FROM THE MIDLANDS
WELDON
CAPPING
KINGSCLIFFE
"SPES"
CHIMNEY STACK KIRBY HALL. NORTHANTS

LONDON—*continued.*

For re-dividing classrooms, &c., at L.C.C. school, Cranbrook Road, Bethnal Green.

Johnson & Co.	£1,040 0 0
Godson & Sons	1,025 0 0
Leng	1,024 0 0
Symes	972 0 0
Holliday & Greenwood	947 0 0
J. & C. Bowyer	944 0 0
Lawrance & Sons, City Road (*accepted*)	937 0 0

LONDON—*continued.*

For re-dividing classrooms, &c., at L.C.C. school, Alton Street, Bow and Bromley.

Johnson & Co.	£1,062 0 0
Godson & Sons	1,052 0 0
Holliday & Greenwood	1,035 0 0
Leng	1,020 0 0
Symes	983 0 0
J. & C. Bowyer	954 0 0
Lawrance & Sons, City Road (*accepted*)	915 0 0

LONDON—*continued.*

For erection of a chimney shaft 110 feet in height, at the Public Baths, Latchmere Road, Battersea, S.W. Mr. T. W. A. **Hayward**, borough engineer and surveyor, architect.

Myles & Horner, Hornsey (*accepted*)	£281	0	0

For the erection of a police station at Plaistow. Mr. J. **Dixon Butler**, F.R.I.B.A., architect, surveyor to the Metropolitan Police District, New Scotland Yard, S.W.

Jerram	£11,950	0	0
Jarvis & Sons	11,410	0	0
Willmott & Sons	11,245	0	0
Kilby & Gayford	10,992	0	0
Symes	10,983	0	0
Sabey & Sons	10,873	0	0
Mowlem & Co.	10,860	0	0
Hammond & Son	10,785	0	0
Perry & Co. (Bow)	10,772	0	0
Grover & Son	10,632	0	0
Fairhead & Son	10,595	0	0
Patman & Fotheringham	10,583	0	0
Maddison	10,494	0	0
Godson & Sons	10,467	0	0
Lawrance & Sons	10,179	0	0

For the supply, &c., of four car-traversers for use at the Cressy Road, Streatham (extension), Camberwell (extension), and Hammersmith (third section) car-sheds.

Stothert & Pitt	£3,822	0	0
Heenan & Froude	2,962	0	0
Heywood & Co.	2,780	0	0
Whiteley & Co.	2,768	0	0
Cowans, Sheldon & Co.	2,592	0	0
Hurst, Nelson & Co.	2,525	0	0
Dick, Kerr & Co.	2,452	0	0
Brush Electrical Engineering Co., Loughborough (*recommended*)	2,297	0	0
Estimate of the chief officer of tramways	2,900	0	0

MOSSLEY.

For the erection of Milton Council School, for the Mossley Education Committee. Mr. F. **Quentery Farmer**, architect, 20 Sir Thomas Street, Liverpool.

W. **Batley & Son**, Micklehurst, Mossley (*accepted*)	£5,741	0	0

SLEAFORD.

For removing buildings at present on site, and building new cells, charge-room, and sergeant's house to Sleaford Police Station. Mr. J. **Clare**, county architect, Sleaford.

Sharpe & Son	£1,040	0	0
Maxey & Son	1,020	0	0
Wallhead Bros.	929	17	6
Banks & Son, Sleaford (*accepted*)	843	17	7

TRURO.

For carrying out alterations and additions in connection with the "Junket House," for the City Council.

C. & J. Harris	£290	0	0
Clare	287	0	0
Colliver (*accepted*)	281	12	0

WALTHAMSTOW.

For painting, colouring, &c., to the interior and exterior, Chapel End Schools, for the Walthamstow Education Committee. Mr. H. **Prosser**, M.S.A., architect to the Committee.

Contract No. 1.

Barton	£416	0	0
McBride	360	7	0
Webb & Co.	348	0	0
Stevens & Sons	338	0	0
Lucas	330	0	0
Penn	305	15	0
Hammond & Son, Romford (*accepted*)	273	10	0

Contract No. 2.

Willett & Son	150	0	0
Barton	142	0	0
McBride	129	16	0
Penn	107	5	0
Stevens & Sons	106	0	0
Lucas	100	0	0
Hammond & Son	98	5	0
Sands, Walthamstow (*accepted*)	98	0	0
Webb & Co.	98	0	0

WALES.

For erection of a public convenience in Sloper Road, Grangetown, for the Cardiff Town Council.

Davies & Sons	£235	0	0
Cox	204	14	5
Oxenham	193	8	0
Knox & Wells	179	11	0
Turner & Sons	175	10	9
Hatherley & Co.	167	0	0
Tucker Bros.	161	9	10
E. D. W. **Evans**, Cardiff (*accepted*)	160	13	8

A sum approaching £6,000 has been the profit for the past year of the borough of Portsmouth tramways.

Mr. S. A. **Sharper**, of Sleaford, has been selected out of about 100 applicants for the post of sanitary inspector to the Sleaford Rural District Council.

The York Board of Guardians have received a letter from the Local Government Board approving the plans of the extensions and alterations at the workhouse, and stating that they were prepared to sanction a loan of £14,294, to be repaid in 25 years, or they would allow 30 years for the repayment of £12,000, and 15 years for the repayment of £2,294.

The Warwickshire County Council have agreed that the plans of the proposed new buildings to be erected on part of the Hawthorns property, Sutton Coldfield, prepared by the county surveyor, be approved, and be submitted to the Home Office for approval; and that the additions and alterations at the Hawthorns house to make it suitable for a superintendent's house, recommended by the county surveyor, be carried out, the total cost being estimated at about £1,900.

The Government Works Department at Sydney, New South Wales, has in hand, authorised, or immediately contemplated, works valued at £5,652,927, and the building trade generally is very active.

Mr. **John R. Hacking**, junior partner of Messrs. Francis Robertson & Hacking, architects, St. Vincent Street, Glasgow, died on Monday, July 17, at the age of 29, after being operated on for appendicitis. Mr. Hacking, in conjunction with Mr. A. Graham Henderson, another Glasgow architect, was awarded a 100-guinea premium for a competitive design for Manchester Library and Art Gallery.

At Leith Dean of Guild Court on Monday the Rev. E. Callan and others were granted warrant to remove the existing shops and dwelling-houses, 108 to 120 Constitution Street, and to erect a chancel, sacristy, chapels, &c., and to extend the church of St. Mary's Star of the Sea.

The King Edward Memorial Hospital in Matlock Lane, Ealing, was opened last week. The total cost, inclusive of site, furnishing, and architects' fees, is over £25,000. The general contract has been carried out by Mr. W. J. Dickens, of Ealing, from the designs and under the superintendence of Messrs. Hall-Jones & Cummings, of Westminster and Ealing.

The London County Council in December last approved an estimate of £800 and sanctioned expenditure on capital account of that amount in respect of preliminary work in connection with the preparation of plans, &c., for the enlargement of the Crossness pumping station. The preliminary work is nearly completed, and the Main Drainage Committee propose that tenders for the erection of the new buildings should be invited. The total cost of the enlargement of the station, including the supply and erection of machinery, is estimated not to exceed £120,000. The Committee also propose to expend £500 on the preparation of plans, making of borings, &c., in connection with the proposed enlargement of the Isle of Dogs storm-water pumping-station, the cost of which is roughly calculated at £30,000.

With a view of raising money in aid of the King Edward National Memorial Fund, which has for its object the purchase of the Crystal Palace as a national memorial to King Edward, a Progress of Peace Exhibition and Festival will be held at the Crystal Palace in 1912. An honorary Grand Council of the King Edward National Memorial and the Exhibition is now being formed to further the projects. An international Festival of Peace will be held in which all civilised Governments and peoples will be invited to cooperate. In this Festival of Peace it is proposed to exhibit, as far as possible, the progress of industries and manufactures, and the development of sciences and arts under the benign influence of peace, and suggesting by contrast the baneful effects of war and internecine strife. Conferences, thanksgiving days, &c., will be arranged. An appeal is made to manufacturers to give the proposal their support.

BUILDING PROGRESS IN THE PROVINCES.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit particulars for insertion in this weekly list.)

ENGLAND.

Buckinghamshire.
Charndon.—Water supply.
Padbury.—Cottage residence.
Steeple Claydon.—Two cottages in Vicarage Lane.

Cheshire.
Chester.—City and County Secondary School at Queen's Park.
Northwich.—Sir John Deane's Grammar School additions.
Tarporley.—Undenominational School. The County Architect.

Derbyshire.
Chinley.—Conservative Club at Leaden Knoll.

Devonshire.
Tiverton.—Technical School domestic science block.

Dorsetshire.
Bridport.—Bridge at the Brewery (£700). Mr. F. Cooper, Borough Surveyor.
Dorchester.—Two houses in South-Court Avenue.
Sherborne.—Four blocks of four cottages for the Council.
Swanage.—Cottage Hospital additions.
Wimborne. Post Office. H.M. Office of Works.

Durham.
Chester-le-Street.—Forty-two artisans' houses in Spout Lane.
Houghton-le-Spring.—Two cottages at Shiny Row.
New Herrington.—Two houses.
Willington.—Thirty houses in North Lane.

Essex.
Eastwood.—Wesleyan Church (accommodation, 250), with vestries and class-room (£650).
Epping.—Cottage Hospital. Sixteen beds (£1,000).
Leigh.—Parish Church new vestries, chancel alterations, &c. Mr. W. D. Caröe, F.R.I.B.A., architect.
Maldon.—Three cottages in Fambridge Road.
Ockendon.—Sewerage scheme. Mr. S. A. Hill-Willis, engineer.

Gloucestershire.
Bristol.—Grammar School: Winterstoke Memorial wing (£10,000).

Herefordshire.
Leominster.—Secondary School extension.
Ross.—Secondary School.

Huntingdonshire.
Yaxley.—Parish Hall. Mr. S. Dodson, architect.

Kent.
Ashford.—Laundry additions, Victoria Road.
Two houses in Star Road.
Three houses and shops in Godinton Road, for L.C. & D.R. Co.
Four shops.
Bilsington.—Drainage scheme (£450). Mr. T. H. Wilde, surveyor.
Broadstairs.—Council School.
Brooklands.—Public Elementary School for 100 girls and infants.
Cranbrook.—Workhouse Infirmary.
Elham.—Workhouse Infirmary. Mr. Bowles, architect.
Maidstone.—Offices for Guardians' and District Council's officers. Messrs. Ruck & Smith, architects.
St. Mary's-in-the-Marsh.—Parish Church restoration. Mr. W. D. Caröe, F.R.I.B.A., architect.
Sevenoaks.—House, Hitchin Lane. Messrs. Church, Rendell & Todd, architects.

Lincolnshire.
East Elloe.—Twenty-eight Council cottages.
Holbeach.—Eight Council cottages.
Horncastle.—Court House (£1,100). Mr. J. Thropp, surveyor.
Tattershall.—Three new cottages.

Middlesex.
Ealing.—Ladies' Convenience on the Green (£540). Borough Surveyor.
Swimming Bath, Longfield Avenue, for elementary scholars (£4,000). Mr. Charles Jones, M.Inst.C.E., Borough Surveyor.
R.C. School in Mattock Lane.

Norfolk.
Thetford.—Workmen's dwellings. Mr. S. S. Wearing, A.R.I.B.A. architect.

Northamptonshire.
Kettering.—Secondary Schools.
Northampton.—School at St. James' End.
Raunds.—Wesleyan Church enlargement, &c.
Council School for 400 scholars.

Northumberland.
Blyth.—Public offices in Bridge Street.
Secondary school in Plessey Road.

Nottinghamshire.
Kirkby.—St. Peter's Church: Harvey memorial window (£306).

Somersetshire.
Longfleet.—Church enlargement (£4,500).
Taunton.—Bridge over the river at Priory (£450). Borough Engineer.
National Provincial Bank of England premises (£9,000 *circa*). Mr. C. H. Brodie, F.R.I.B.A., architect. Messrs. H. W. Pollard & Son, contractors.
Two shops and premises in Upper High Street.
Wellington.—Isolation Hospital.
Priory School.
Secondary School.
Wells.—Fortway Street Boys' School additions and alterations. Mr. A. J. Pictor, A.R.I.B.A., architect.

Surrey.
Chertsey.—Nine artisans' dwellings at Thorpe. Mr. H. Beeney, M.S.E., Council Surveyor.
Chipstead.—Children's Home (£600).

Sussex.
Bognor.—Twelve artisans' cottages.
Brighton.—Winter garden on the Palace Pier.

Wiltshire.
Amesbury.—County Police Station. Mr. J. G. Powell, County Surveyor.
Devizes.—Central police station.
Wootton Bassett.—Police station and Sessions Hall. County Surveyor. Messrs. E. Drew & Sons, contractors (£1,245).

Yorkshire.
Allerton Bywater.—Sixty-one houses at Lock Lane.
Clifton.—North Riding Asylum. Block of six cottages. Mr. W. H. Brierley, F.S.A., architect.
Fartown.—Two houses in Skipton Avenue. Mr. J. Berry, architect.
Golcar.—Detached bungalow. Messrs. Lunn & Kaye, architects.
Huddersfield.—Workshop additions at Paddock Head. Messrs. Lunn & Kaye, architects.
Lepton.—Infant School near Fenay Bridge.
Linthwaite.—Bungalow in Blackmoorfoot Road.
Four houses in Manchester Road.
Redcar.—Memorial (Coronation) Clock Tower (£250—£300).
Thornbury.—Church (£5,000).
Wykeham.—Church (All Saints); organ restoration (£230).
York.—White Swan Hotel alterations. Mr. W. Mortimer, architect.
Elementary School for 250 scholars in Brook Street.
Workhouse additions and alterations (£14,300).

WALES.

Caergwrle.—Caretaker's house for the Castle (£250).
Gwersyllt.—Parish Church additions and alterations.
Llanfair Caereinion.—Water supply.
Llandrindod Wells.—Council School and teacher's house. Mr. R. Wellings Thomas, F.R.I.B.A., County Surveyor.

SCOTLAND.

Aberdeen.—John Knox Parish Church.
Forgue.—United Free Church.
Glenmoriston.—Parish Church (£4,000).
Whitehills.—Sewerage scheme (£850). Mr. Barron, C.E., engineer.

The Local Government Board recently informed the Truro City Council that they had mislaid the plans for the municipal housing scheme, and the Board asked that they should be replaced.

Two Durham County Council schools were opened last week. One at New Lambton has been erected by Messrs. Clerey & Charlton, contractors, Sunderland, at a cost of £4,261, and a cost per head, exclusive of the cookery room, of £10 8*s.* 5½*d.* The other is at Haswell, and has cost £9,202. The contractor was Mr. J. W. White. Mr. W. Rushworth, F.R.I.B.A., the county architect, prepared both plans.

THE INSTITUTION OF MUNICIPAL ENGINEERS.

THE Southern District of the Institution of Municipal Engineers held their annual meeting at the offices of the Institution, 39 Victoria Street, S.W., on the 12th inst. Mr. Horace Boot, M.I.E.E., M.I.Mech.E., was re-elected district chairman, and Mr. Ernest W. Veale, surveyor to the Farnham Rural District Council, was re-elected hon. district secretary for the ensuing year. The programme for the year was discussed and a number of meetings and visits, of which due notice will be given, were tentatively arranged.

The annual meeting of the Eastern District will be held at Goode's Hotel, Marine Parade, Yarmouth, on Saturday, July 22, at two o'clock. The following business will be taken: Election of District Chairman and Hon. District Secretary. Programme for ensuing session: A paper, "Construction, maintenance, and repair of highways," by Mr. W. Astley Norris, surveyor to the Swaffham Urban District Council, will be presented for discussion. A copy of the paper may be obtained from the secretary. Mr. Andrew Paterson's paper, "Notes on exhibits in the Royal Agricultural Show of special interest to Road Surveyors," which was presented at Norwich, will also be discussed. Lunch, 2*s.* 6*d.* per head, may be obtained at Goode's Hotel at one o'clock, when a table will be reserved for those notifying their intention to be present. R. G. Coates, Hon. District Secretary, Acle, Norwich; B. Wyand, Secretary, 39 Victoria Street, S.W.

On Saturday, July 29, the Institution of Municipal Engineers will hold a meeting at Edinburgh. At 10.30 the members will meet at Elder's Hotel, 9 South St. David Street (opposite "Jenners"), and proceed to formation of the Scottish district of the institution and election of officers. At twelve o'clock an adjournment will be made for luncheon. At one o'clock the party will leave Waverley Station, arriving at Dalmeny Station at 1.21, and after walking across Forth Bridge, they will join the Forth Bridge launch and sail up to Rosyth Naval Base and back to South Queensferry (by permission of the Secretary of the Forth Bridge Railway Company). At four o'clock the party will leave Dalmeny Station, arriving at Waverley Station at 4.20. Members must give notice to Mr. B. Wyand, secretary, 39 Victoria Street, London, S.W., not later than Saturday, 22nd inst., of their intention to be present, and must also state if they desire lunch or accommodation at Elder's Hotel.

VARIETIES.

MR. ILLINGWORTH HOLMES, of Birstall, has been appointed surveyor to the Salcombe (Devon) Urban District Council.

MESSRS. R. SCRIVENER & SONS, architects, Hanley, have been instructed to proceed with the proposed alterations at the Hanley, Cannon Street, Council School.

THE Princess Alice Memorial Hospital at Eastbourne is to be enlarged at a cost of £4,500; a nurses' home is also to be erected as a memorial to the late King Edward VII.

SIR GEORGE CHUBB, BART., presided a few days ago at the opening of the first house of Farrington's School, Chislehurst. The architect is Mr. Josiah Gunton, C.C.

THE Board of Education have approved of the proposed erection of a Secondary School at Kettering on a portion of the Manor House field. The cost of the site is £2,250.

AN Early English half-timbered dwelling house, dating from 1490, has been removed from Hawstead, Suffolk, and re-erected on Marine Parade East, Clacton-on-Sea.

BOOTS, LTD., have offered the London County Council a rent of £750 a year for a lease of 99 years of a site with an area of 57,500 square feet and a frontage of about 317 feet to Tower Bridge Road.

THE South-Eastern and Chatham Railway Company are carrying out extensive additions to their locomotive works at Ashford, Kent. New erecting, boiler-making and tender shops are to be built and fitted with the latest electrical appliances.

THE Western Lawns at Hove are to be extended seawards at an approximate cost of £5,200, so as to be on a line with the sea-wall from the Hove boundary to the West Pier. About seven thousand square yards of additional promenade will thus be provided.

THE Stockport Guardians resolved on Monday to erect at Stepping Hill new buildings for imbeciles and epileptics, at a probable cost of £26,000. The buildings will accommodate 105 male and 159 female patients, and will include mental wards, epileptic wards, sick wards, and short-period wards.

MR. JUSTICE EVE on Tuesday sanctioned in Chancery a scheme for the acquisition of a site at Burhill between Walton and Weybridge for the establishment of homes for 600 or 700 poor people, in connection with the bequest by the late Mr. William Whiteley of £1,000,000 for the provision of homes for the poor.

MESSRS. LACEY, SILLAR & LEIGH, consulting engineers, Caxton Street, London, have been engaged by the Newcastle-under-Lyme Town Council to advise them in the matter of the proposed electricity works extensions, and with special reference to use of gas engines in preference to steam for the generation of electricity.

CAPTAIN GILMOUR, of Birkenhead, has undertaken to defray the cost of erecting the Central Hall for the New Undergraduates' Union in connection with Liverpool University, at a cost of £5,000. This donor has already promised to provide furniture for the New Union at a cost of £1,500.

OWING to an insufficient response to the Garden City Association's appeal for help the scheme of a garden suburb at Radford, Coventry, cannot be proceeded with. Mr. T. A. Cash, who initiated the movement three months ago, has, however, been able to renew the option on the land for a time.

THE Holme Cultram Urban District Council has adopted the plan of Mr. J. C. Boyd, architect, of Carlisle, for improving the coast protection works at Silloth for a length of 916 yards north-east of North House, and it has been agreed that the plans be sent to the Local Government Board. The cost of the scheme is estimated at £1,853.

THE Chertsey Board of Guardians have adopted a report of their Works Committee, who advised that a house for 12 nurses should be built in the garden on the east side of the workhouse buildings, to contain 12 bedrooms, one general sitting room, one private sitting room, lavatories, two bathrooms, and a pantry.

THE Commissioners of His Majesty's Works have instructed Messrs. Horne & Co. to sell by private contract on July 27 the Coronation annexe to the western entrance of Westminster Abbey. The principal part, the robing hall, is described as being 117 feet by 62 feet by 30 feet high, artistically and emblematically decorated with many suitable arms, shields, mottoes, badges, and quarterings.

THE Board of the Rochdale Infirmary have decided to proceed at once with a portion of a large scheme of extension at a cost of about £16,000. These additions will include a new operating theatre, accommodation for additional staff, provision for ophthalmic treatment, and an enlargement of the in-patients' department, together with an extension of 24 additional beds. The full scheme provides for 48 extra beds.

THE North Riding Education Committee recommend that the undermentioned sums be borrowed to defray capital outlay:—Northallerton Grammar School, for additions to existing premises, £1,200; North Ormesby Council Girls' School, £400 for improvements; Cargo Fleet proposed new school, £4,650; and Huntingdon School, £1,185 for additional land, enlargements, and legal expenses.

A FACULTY was granted on Tuesday at the York Consistory Court for alterations at the parish church of St. Mary, Doncaster. These include the removal of the present apsidal end, together with the east end vestries, building a rectangular chancel extending further eastwards with vestries on the south side and an organ chamber on the north side, the erection of a central door with porch at the west end, and of a new door on the south side.

THE tender of Messrs. E. Taylor & Co., Ebor Works, Littleborough, for the building of the new annexe and incidental works, the County Asylum, Whittingham, Preston, amounting to £117,350, has been accepted by the Committee of Visitors on behalf of the Lancashire County Asylums Board. The whole of the works, according to the *Manchester Guardian*, are to be carried out under the supervision of Messrs. Sykes & Evans, architects, of Manchester and Rochdale. The scheme was approved by the Lunacy Commissioners and the Home Secretary in May, and the buildings will be completed ready for occupation in about two years.

AT the meeting of Sunderland and District Trades and Labour Council held last week a letter was read from the local secretary of the Operative Bricklayers' Society saying they were compelled, reluctantly, to sever their connection with the Council forthwith, as the newly constituted rules of the Council in their political aspect did not harmonise with the views of the executive of the society, nor with the spirit of the society's general rules. The delegate of the union explained that the withdrawal was a result of the Osborne judgment, which did not permit them to pay money out of their funds to the Council now that it was part of the Labour party.

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EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2* P.M. *on Thursdays.*

COMPETITIONS OPEN.

AUSTRALIA.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

ATHENS.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l.* A first prize of 800*l.*, and a second prize of 320*l.* will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

EGREMONT.—Aug. 8.—The Urban District Council offer premiums of £40 and £10 for a scheme to lay out, under the Housing of the Working Classes Act, building sites at Egremont and Bigrigg. The Egremont site consists of 1 acre, 1 rood, 16 poles, and the Bigrigg site 3 acres, 1 rood, 28 poles. Further information may be obtained from the Surveyor, Town Hall, Egremont, Cumberland.

LONDON.—July 31.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1s., which will be refunded on receipt of a bona-fide design or return of conditions within one month of receipt. All questions must be sent not later than July 31 to Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

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Newcastle-upon-Tyne.—The Education Committee invite competitive plans from architects practising in Newcastle for a Senior Mixed School and a Junior Mixed School, each to accommodate 365 children, at Walker Gate. Mr. Spurley Hey, secretary, Education Offices, Northumberland Road, Newcastle-upon-Tyne.

Northwich.—Aug. 1.—The Urban District Council are prepared to receive names of architects willing to prepare plans for public baths (cost not exceeding £7,000). A limited number will be selected to compete. An assessor will be appointed and premiums awarded. Send applications, stating experience, by August 1, to Mr. J. Arthur Cowley, clerk, Council Offices, Northwich.

Scotland.—Aug. 1.—The Committee of the Battle of Largs Memorial Fund invite sketches of a suitable memorial to commemorate the battle of Largs, 1263. The site of the memorial will be on the foreshore of Largs, but the exact position has not yet been determined. The committee have at their disposal the sum of 300*l.*, which is the maximum sum to be expended on the erection. A premium of 5*l.* will be paid for the successful sketch. The sketches will be judged by the subscribers. Mr. Peter Morris, Town Clerk, Largs.

Skegness.—Sept. 5.—The Executive Committee invite architects to submit competitive designs and estimates for the proposed Cottage Hospital. Building to cost £900. Premium for design placed first, £15 15*s.* Designs to be sent in by Sept. 5 to Mr. W. W. Robinson, hon. secretary, Capital and Counties Bank, Skegness.

CONTRACTS OPEN.

Ashington.—July 31.—For proposed warehouse, fodder house, and other alterations, for the Ashington Industrial Co-operative Society. Mr. O. Blythe, architect, Ashington, Northumberland.

Barwick-in-Elmet (Yorks.).—Aug. 10.—For the following works in connection with the Barwick-in-Elmet, Scholes, temporary school—boundary walls, conveniences, &c. (builder and joiner). Deposit £1. Education Architect, County Hall, Wakefield. The Clerk of the County Council.

Belfast.—Aug. 10.—For new schools on the Cregagh Road, for the Willowfield Select Vestry. Messrs. M'Carthy & Brookes, surveyors, Scottish Provident Buildings, Belfast.

Boston.—July 31.—For alterations to premises, Bridge Street, Boston, for the Manchester Unity Lodge of Oddfellows. Messrs. Killingworth & Son, Dolphin Lane, Boston.

Bradford.—Aug. 1.—For the following roof work at the Esholt Sludge Disposal Buildings, for the Corporation, viz., Contract No. 15, joiners' work; (16) plumbers' work; (17) glaziers' work; (18) slaters' work; (19) painters' work. Deposit £1 1*s.* Mr. Joseph Garfield, Esholt Hall, Shipley.

Cannock (Staffs.).—Aug. 1.—For erection of new elementary school for 300 scholars, with out-buildings and boundary wall at Bridgtown, for the Cannock Urban District Council. Deposit £1 1*s.* Mr. C. A. Loxton, clerk.

Cardiff.—Aug. 4.—For erection of a drill hall, Newport Road, Cardiff, Glamorgan County Territorial Association. Mr. J. W. Rodger, architect, 14 High Street, Cardiff. "Tender for Drill Hall" to Captain C. J. Wilkie, 20 Dumfries Place, Cardiff.

Cardigan.—Aug. 8.—For erection and completion of two villas on the Gwbert Road, for Mrs. H. E. Hagar-Price. Mr. J. T. J. Williams, architect, Napier Street, Cardigan.

Carnarvon.—Aug. 4.—For alterations, painting, &c., of the Salem Congregational Chapel, Carnarvon. Drawings and specifications at the office of Mr. H. G. Thomas, architect, Castle Buildings, Carnarvon. Mr. W. H. Williams, Hyfrydle, Llanberis Road, Carnarvon.

Castleford.—Aug. 10.—For alterations and repairs (joiner and asphalter) at the Castleford Wheldon Lane Council school, for the West Riding Education Committee. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Chadderton (Lancs.).—Aug. 1.—For proposed town hall and public offices in Middleton Road, for Chadderton Urban District Council. Mr. H. Hoyle, clerk, Town Hall, Chadderton. Deposit £1 1*s.* Messrs. Taylor & Simister, architects, Oldham.

Cork.—Aug. 3.—For nineteen labourers' cottages and fencing same number of cottage plots, at a cost not exceeding £150 per cottage, for the Cork Rural District Council. Mr. J. Cotter, clerk.

Dover.—Aug. 19.—For erection of infants' school at Bulwark Hill, Dover, for Town Council. Deposit £2 2*s.* Mr. W. C. Hawke, A.M.I.C.E., Maison Dieu House, Biggin Street, Dover.

Downpatrick.—Aug. 5.—For proposed building and alterations in the sanatorium, for the Committee of Down County Infirmary. Mr. D. Smith, registrar.

Dublin.—Aug. 10.—For erection of one block of three dwellings at Castletown, Berehaven, Co. Cork, for the Commissioners of Irish Lights. Harbour Engineer's Office, Belfast. Deposit £2 2*s.* Mr. H. G. Cook, secretary.

Exeter.—Aug. 8.—For the alteration of Council schools for the Devon Education Committee. Architect's Office, 1 Richmond Road, Exeter.

Hoyland Nether, near Barnsley.—Aug. 1.—For erection of a small church and Sunday schoolroom, &c., at Hoyland Nether, near Barnsley. Mr. W. Allen, architect, Market Street, Hoyland.

Huby (near Leeds).—For erection of a proposed house at Huby, near Leeds. Messrs. J. E. Stocks, architects, 20 Park Road, Leeds.

Ireland.—For erection of seventy-six houses, under the Housing of the Working Classes Acts, for the Ennis Urban District Council. Deposit £2. Mr. M. J. Carmody, town clerk, Town Hall, Ennis.

Ireland.—July 31.—For the following works at Donnybrook, for the Pembroke (Ireland) Urban District Council: (*a*) Erection of eleven artisans' dwellings on Old Mill site; (*b*) erection of seventy-seven artisans' dwelling on Auburn Road site; (*c*) construction of roadways, concrete footpaths, with main sewers, water mains, &c., in connection with the above-mentioned artisans' dwellings; (*d*) installation of electric lighting in proposed new artisans' dwellings, and new streets in connection with same, on the Old Mill and Auburn Road sites. Deposit £1 per section. Mr. J. C. Manly, clerk to the Council, Town Hall, Ballsbridge, Pembroke, Co. Dublin.

Ireland.—July 31.—For erection of ten working-class dwellings and works in connection at Killiney village. Messrs. Millar & Symes, architects, 60 Dawson Street, Dublin. Deposit £1 1*s.* Mr. R. Cuningham, Town Clerk, Council Offices, Killiney.

Ireland.—Aug. 8.—For erection of new wagon and carriage shops at Inchicore, Dublin, together with other incidental works, for the Directors of the Great Southern and Western Railway (Ireland). The new shops will be in two blocks, one covering an area of 5,300 square yards, and the other an area of 6,765 square yards, and will be constructed of brick, with steel roof trusses carried on steel columns. Deposit £2 2*s.* The Company's Engineer, Inchicore, Dublin.

Launceston.—Aug. 7.—For erecting a new Council school at Launceston, for the Cornwall Education Committee. Mr. B. C. Andrew, architect, Biddick's Court, St. Austell.

Little Dunham (Norfolk).—For erection of two cottages on the main road to Swaffham. Mr. C. H. Large, Swaffham, Norfolk.

London.—Aug. 1.—For repairs, cleansing, painting, &c., to (1) infirmary, (2) workhouse, (3) offices, (4) schools, situate at Isleworth, Middlesex, for the Guardians of Brentford Union. Deposit £2 2*s.* Mr. William Stephens, clerk, Union Offices, Isleworth, W.

Mottingham (Kent).—July 31.—For erection of new offices required to be carried out at the Mottingham Council school, for the Kent Education Committee. Mr. W. H. Robinson, architect, Caxton House, Westminster.

Portslade (Sussex).—Aug. 12.—For constructing a ward block and other work at the Infectious Diseases Hospital, Portslade, for the Hove Town Council. Mr. H. H. Scott, on deposit of £2 2*s.* Mr. H. Endacott, town clerk, Town Hall, Hove.

Patricroft.—July 31.—For alteration of the Eccles and Patricroft Hospital, Cromwell Road, and the erection of a new wing in extension thereof. Deposit £2 2*s.* Mr. John Knight, architect, Haworth's Buildings, 5 Cross Street, Manchester.

Quakers' Yard (Glamorgan).—For erection of three blocks of villas, near Quaker's Yard Station, for the Tre-Gomer Building Club. Mr. Gomer Price, secretary, Maes-Taf, Treharris.

Radyr.—Aug. 9.—For the erection of a villa residence at Radyr, Glam., with garage, &c. Mr. W. H. Dashwood Caple, architect, 2 Church Street, Cardiff.

Redruth.—Aug. 3.—For erection of a proposed residence at West Trewirgie, Redruth, for Mr. Edgar Trounson. Mr. L. Winn, architect and surveyor, 27 Boscawen Street, Truro.

Rhosrobin, near Wrexham.—Aug. 12.—For erection of schoolroom, &c., at Rhosrobin, in accordance with plan and specification to be seen at Votty, Bersham Road, Wrexham, after July 29.

Rottingdean (Sussex).—Aug. 8.—For erection of four receiving homes and a separate infirmary on land adjoining the Warren Farm Schools, situate in the parish of Rottingdean, for the Brighton Board of Guardians. Deposit £5. Mr. J. W. Hawker, architect for the Guardians, 3 North Street Quadrant, Brighton.

Sholing.—Aug. 2.—For the following, for the Southampton County Council:—(1) Sholing girls' school, sundry alterations to convert into boys' school; (2) Sholing boys' school, sundry alterations to convert into girls' school. Deposit £1 1*s.* for each specification. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

Wakefield.—Aug. 1.—For pointing, &c., required to be done to the tower of the Town Hall. Mr. J. P. Wakeford, city surveyor, Town Hall, Wakefield.

Wales.—July 31.—For alterations and additions to Moriah Chapel, Treboeth. Mr. W. Matthews, architect, 151 Bryngelly Row, Treboeth, Glam.

Wales.—Aug. 9.—For erection of a villa residence at Radyr, Glamorgan. Mr. W. H. Dashwood Caple, architect, 2 Church Street, Cardiff.

Walsall.—Aug. 1.—For construction of an underground convenience, The Bridge. Deposit £2 2*s.* The Borough Surveyor, Council House, Walsall.

Wallsend.—Aug. 5.—For erection of a ferro-concrete bridge over the Wallsend Burn. Conditions of contract to be inspected at Borough Surveyor's office, Town Hall, Wallsend. Drawings showing extent and nature of bridge on payment of 21*s.*, returnable on receipt of tender. W. V. Mulcaster, Town Clerk, 28 Sandhill, Newcastle-on-Tyne.

Wallsend.—Aug. 8.—For improvements at Wallsend Station, for the North-Eastern Railway Co. Plans obtained upon application to Mr. William Bell, the company's architect, Central Station, Newcastle-on-Tyne.

TENDERS.

BAKEWELL.

For work in connection with the Eyam Woodlands water scheme, for the District Council.

R. C. Brebner & Co., Edinburgh (*provisionally accepted*)	£842	12	2

BELFAST.

For erection of new buildings, &c., at the Queen's University of Belfast. Mr. W. H. Lynn, R.H.A., architect, Belfast.

New Buildings.

Henry & Sons	£35,309	0	0
Keith	34,312	0	0
Stewart	32,889	0	0
Courtney & Co.	31,863	0	0
I. & R. Thompson	31,467	0	0
Laverty & Sons, Belfast (*accepted*)	31,367	0	0
Campbell & Son	30,718	0	0
H. & I. Martin	30,577	0	0
McLaughlin & Harvey	30,062	0	0
Corry	28,345	0	0

Drill Hall and Rifle Range.

McDowell & Co.	£3,968	0	0
Henry & Sons	3,911	0	0
Keith	3,700	0	0
Laverty & Sons	3,646	0	0
I. & R. Thompson	3,589	0	0
Stewart	3,548	0	0
Courtney & Co.	3,496	0	0
McLaughlin & Harvey	3.450	0	0
Campbell & Son	3,441	0	0
H. & J. Martin	3,343	0	0
Corry, Ltd., Belfast (*accepted*)	3,230	0	0

GUISBOROUGH.

For additions and alterations at the grammar school, for the North Riding Education Committee.

Porteous (*accepted*)	£1,720	0	0

BYFLEET.

For the erection of the Byfleet International Stores. Messrs. George Baines & Son, architects, 5 Clement's Inn, Strand, W.C.

Estimate 1.

Kemp	£510	0	0
Jerram	494	0	0
Newbury	480	0	0
Carter, Ltd.	464	5	3
Lewis & Bro.	384	0	0
Tarrant (*accepted*)	383	0	0

Estimate 2 (extras).

Jerram	£10	0	0
Carter, Ltd.	8	0	0
Tarrant	7	0	0
Kemp	6	10	0
Newbury	6	0	0
Lewis & Bro.	5	5	0

Estimate 3 (saving).

Jerram	£10	0	0
Newbury	7	0	0
Kemp	3	10	0
Carter, Ltd.	3	3	0
Tarrant	2	16	0

Estimate 4 (saving).

Carter, Ltd.	£15	0	0
Tarrant	5	0	0

Estimate 5 (extras).

Carter, Ltd.	£18	0	0
Jerram	17	0	0
Tarrant	16	8	0
Lewis & Bro.	15	0	0
Newbury	15	0	0
Kemp	14	15	0

GISLINGHAM.

For the erection of a house at Gislingham, Eye, Suffolk. Mr. T. Inglis Goldie, architect, Norwich.

House.

Howes Bros.	£618	15	6
Gayford	597	0	0
Boddy	587	0	0
Andrews	565	18	6
Yelf	561	10	0
Theobald & Sons	558	10	0
Plummer	550	0	0
Sampson	536	10	0
Hogg & Son	536	0	0
Smith	533	10	0
Podd & Fisher	510	0	0
J. W. Trudgett, Colchester (*accepted*)	498	0	0
Architect's estimate	530	0	0

Stable.

J. W. Trudgett (*accepted*)	116	0	0
Architect's estimate	120	0	0

HIGH WYCOMBE.

For new cinematograph theatre, High Wycombe. Messrs. Bignold & Idle, architects, 242 Lavender Hill, S.W.

Kingerlee & Son	£2,499
Thomas & Edge	2,274
Webster & Cannon	2,265
Lovell & Son	2,232
Gibson & Son	2,186
Hunt & Son	2,091
Hayes & Co.	2,039

HUDDERSFIELD.

For the various works required in erection of a new school, boundary walls, drainage, and outbuildings at Woodhouse. Messrs. J. B. Abbey & Son, architects and surveyors, Huddersfield.

Accepted tenders.

Mark Brook, Huddersfield (mason).
Varley & Son, Slaithwaite, near Huddersfield (joiners).
Garlon & Son, Huddersfield (plumbers).
H. & W. Riley, Longroyd Bridge, Huddersfield (plasterers).
Alfred Bowen, Crosland Moor, near Huddersfield (slater).
Allen Jackson & Co., Huddersfield (painters).
John Cooke, Littleroyd, Huddersfield (concreter).
Joseph Taylor & Son, Huddersfield (ironwork).
Calvert & Co., Folly Hall, Huddersfield (heating).

KEIGHLEY.

For new school at Highfield, for the Keighley Education Committee. Mr. A. P. HARRISON, M.S.A., 136 Highfield Lane, Keighley.

Accepted Tenders.

Robinson, Ltd.	£2,520	0	0
Do.	810	0	0
Harrison, Ltd.	387	0	0
Hird & Co.	361	2	11
Throup	238	0	0
Chaddock Patent Window Co.	225	19	0
Bailey & Clapham, Ltd.	130	18	0
Thompson	26	10	7
Architect's estimate	4,800	0	0

KING'S HEATH.

For erection of superintendent's lodge at King's Heath Park, Birmingham. Mr. A. W. CROSS, engineer and surveyor, 23 Valentine Road, King's Heath.

Bowden	£558	0	0
Morgan	549	11	9
Curson	530	0	0
Dawson	513	11	5
Robinson & Son	495	18	2
Roe	454	10	0
INGRAM & SONS, Bournbrook, Birmingham (*accepted*)	449	15	0

LONDON.

For the provision of new premises for the L.C.C. School of Photo-Engraving and Lithography, City of London.

Leslie & Co.	£17,177	0	0
Allen & Sons	16,783	0	0
Higgs & Hill	16,352	0	0
Holloway Brothers (London)	16,031	0	0
Smith & Sons	15,460	0	0
Kirk & Randall	15,423	0	0
Holloway	15,237	0	0
Lawrance & Sons	14,973	0	0
PATMAN & FOTHERINGHAM, Ltd., Islington (*accepted*)	14,923	0	0
C. Wall, Ltd. (*withdrawn*)	13,500	0	0
Architect's estimate	15,947	0	0

For enclosing, draining, and tar-paving land adjoining the London County Council Secondary School, Brixton.

Ford & Sons	£873	0	0
Goad	845	0	0
Hollingsworth	767	0	0
Lathey Bros.	763	0	0
Hammond	755	0	0
Rice & Son	735	0	0
King & Son	728	0	0
Garrett & Son	707	0	0
Lapthorne & Co.	700	0	0
Bragg & Sons	687	0	0
King, Brixton (*recommended*)	677	0	0
Architect's estimate	700	0	0

For extending to the roof playground the boys' staircase at the Hague Street school, Bethnal Green, for the L.C.C.

Grover & Son	£676	0	0
McCormick & Sons	618	0	0
Price	583	0	0
Brand, Pettit & Co.	575	0	0
Stewart	563	0	0
Lawrence & Son	561	0	0
Lawrance & Sons	539	0	0
Stevens & Sons, 33 Crouch Hill (*recommended*)	494	0	0
Architect's estimate	484	0	0

For the erection of a cookery centre at the Hungerford Road School, Islington.

Treasure & Son	£998	0	0
Stewart	921	0	0
McCormick & Sons	906	0	0
Thomas & Edge	872	0	0
L. H. & R. Roberts	872	0	0
Williams & Son	860	0	0
Stevens & Sons	859	0	0
Reason	840	0	0
Neal	786	0	0
F. & T. Thorne	784	0	0
McLaughlin & Harvey	750	0	0
Lawrance & Sons, City Road (*recommended*)	704	0	0
Architect's estimate	779	0	0

LONDON—*continued.*

For the execution of repairs to the paving of Blackwall and Greenwich tunnels, for the L.C.C.

Peters	£666	8	7
Wheeler & Co.	606	19	8
John Mowlem & Co.	581	0	0
Anderson, Poplar, E. (*recommended*)	580	11	8
Estimate of the chief engineer	650	0	0

For painting, cleaning, &c., works at certain schools, for the London County Council.

Credon Road, Camberwell.

Appleby & Sons	£690	0	0
Leng	582	0	0
Bailey	579	0	0
Groves	545	0	0

Stanley Road, Deptford.

Lowe & Co.	£793	0	0
Thomas & Edge	716	0	0
Leng	693	0	0
Scott Fenn	678	0	0
Groves	644	0	0

The Hugh Myddelton, Finsbury.

Scott Fenn	£628	18	0

The County Secondary School, Fulham.

Roberts & Co., Ltd.	£1,045	0	0
Johnson & Co., Ltd.	945	0	0
King & Son	927	0	0
J. & M. Patrick	876	0	0
Lapthorne & Co., Ltd.	863	0	0
Crook & Son, Ltd.	843	7	2
Johnson	761	0	0
Bendon, Ltd.	704	13	10
Gathercole Bros.	700	0	0
Lole & Co.	622	12	0

Catherine Street, Hoxton.

Johnson & Co., Ltd.	£1,031	0	0
Killby & Gayford, Ltd.	937	10	0
Holloway Bros. (London), Ltd.	936	10	0
Roome & Co.	925	10	0
Grover & Son	881	0	0
Lawrance & Sons, Ltd.	829	0	0

Gifford Street, Islington.

Patman & Fotheringham, Ltd.	£871	0	0
Williams & Son	842	0	0
Stevens & Sons	776	0	0
Roberts & Co.	613	0	0

Holmes Road, St. Pancras.

Lenn, Thornton & Co.	£635	10	0
Marchant, Hirst & Co.	612	0	0
Chappell	555	0	0

For the structural improvement of the Peckham Park school, Peckham, for the London County Council.

King & Son	£15,316	0	0
Smith & Son	14,568	0	0
Akers & Co., Ltd.	14,198	0	0
Appleby & Sons	14,152	0	0
Garrett & Son	14,145	0	0
Kirk & Randall	13,979	0	0
Thomas & Edge	13,691	0	0
Johnson & Co., Ltd.	13,477	0	0
Holloway	13,452	0	0
McLaughlin & Harvey, Ltd.	13,449	1	9
J. & M. Patrick	13,151	0	0
Leng	13,070	0	0
Lawrence & Sons, Ltd.	12,816	0	0
Holliday & Greenwood, Ltd.	12,190	0	0
Architect's estimate	12,632	0	0

For the laying of stoneware ducts, &c., required in connection with the construction, on the overhead trolley system of electric traction, of the authorised tramways from Brixton to Herne Hill.

Reid Bros.	£2,687	12	4
Mowlem & Co.	2,588	0	0
Ewart	2,530	7	10
Westminster Construction Company	2,203	11	1
Dick, Kerr & Co., Abchurch Yard, E.C. (*recommended*)	2,180	11	10
Estimate of the chief officer of tramways	2,330	0	0

COMPETITION NEWS.

Newton Abbey.—The awards have been made in the competition for new buildings organised by the Governors of the Seale-Hayne College. Mr. C. S. Smith, F.R.I.B.A., of Reading, the assessor, has given the first premium of £100 to design No. 17, submitted by Messrs. W. H. Mitchell, Son & Gutteridge, A.R.I.B.A., 9 Portland Street, Southampton. The second prize of £50 has been awarded to design No. 8, Mr. Josias Beare, A.R.I.B.A., of Newton Abbot. The third prize of £30 has been awarded to design No. 31, Messrs. Crouch, Butler & Savage, 39 Newhall Street, Birmingham. The complete building scheme contemplates buildings to cost £30,000.

Northampton.—The Borough Education Committee accepted plans last week for the proposed Girls' Secondary School, which is to be built in St. George's Avenue, at a cost of about £14,000. Twenty-two sets of plans were submitted in the competition, and the assessor, Mr. J. Osborne Smith, A.R.I.B.A., of Westminster, placed five of them in the following order of merit:—(1) Messrs. Sharman & Archer, Wellingborough; (2) Messrs. Talbot, Brown & Fisher, Wellingborough; (3) Messrs. Gotch & Saunders, Kettering; (4) Messrs. H. H. Dyer & Son, Northampton; (5) Messrs. Talbot, Brown & Fisher, Wellingborough. Messrs. Sharman & Archer's plan was accepted by the Committee. The competition was restricted to architects practising in the borough or county of Northampton.

Wallsend.—Messrs. Marshall & Tweedy, architects, 17 Eldon Square, Newcastle-on-Tyne, have been placed first in the competition for a new elementary school by Mr. A. W. S. Cross, F.R.I.B.A., the assessor. Mr. Edward Cratney was placed second. In the winning design the accommodation provided is for 1,440 children in three departments, also cookery, manual, and dining-room for children, caretaker's residence, and three classrooms for domestic subjects. The whole of the schools are single-storey buildings and embody the latest requirements of the Board of Education with respect to central halls and the better ventilation and isolation of classrooms.

SOUTHAMPTON BUILDING TRADE DISPUTE.

The arbitrator appointed by the Board of Trade to settle matters in dispute between the Southampton and District Building Trades Employers' Association and the workmen has now issued his award. He fixed the rates of wages and the conditions as to the notice as follows:—

The standard rate of wages for fully-qualified bricklayers will be 8½*d.* per hour, an extra ½*d.* per hour shall be paid for gauge work and for working in wet or foul drains; the standard rate of wages for fully-qualified plumbers shall be 8½*d.* per hour, an extra ½*d.* per hour shall be paid while working in infected rooms; the standard rate of wages for fully-qualified carpenters and joiners shall be 8½*d.* per hour; the standard rate of wages for spindle four cutters tenon machines, general joiners, and recessing machines 9*d.* per hour; other machinists and sawyers, 7½*d.* per hour; the standard rate of wages for fully-qualified painters shall be 7½*d.* per hour, an extra ½*d.* per hour to be paid for working in infected rooms; the standard rate of wages for builders' labourers shall be 5½*d.* per hour, an extra ½*d.* per hour shall be paid for scaffolders, for men timbering trenches, for men working with sledge hammer and clink, and for men working in wet or foul drains.

The employer to give one hour's notice or one hour's pay (except in case of misconduct); the employee to give the same amount of notice, or forfeit one hour's pay. On termination of engagement all wages due shall be paid at the expiration of such notice, or walking time allowed if sent to the yard. This rule applies to bricklayers, plumbers, painters, machinists, and labourers; but in the case of carpenters and joiners substitute the following:—The employer to give one and a-half hours' notice or one and a-half hours' pay (except in case of misconduct); the employee to give the same amount of notice or forfeit one and a-half hours' pay. On termination of engagement all wages due shall be paid at the expiration of such notice, or walking time allowed if sent to the yard. The employee may occupy the one and a-half hours' notice in grinding and sharpening tools.

No alteration has been made in the overtime rule.

The award comes into operation on August 5, 1911, so that the new rates of wages will commence for the week ending August 12, 1911.

The application made by the workmen was for an advance of 1*d.* per hour in the trades mentioned. The award grants an increase of ½*d.* per hour in all the trades.

THE ELEVENTH L.C.C. ASYLUM.

In May 1906 the London County Council sanctioned expenditure on capital account of £2,000 for the preparation of preliminary plans and approximate estimates of cost of a proposed asylum on the Horton estate. Preliminary general plans have been prepared by the asylums engineer, and have received the informal approval of the Lunacy Commissioners. The plans provide for an institution for 2,168 inmates, designed upon the villa principle, which offers many advantages, particularly in the ability to make a more thorough classification of the patients than the older type of building permits, and in the more home-like surroundings which are provided. It is proposed to divide the asylum into two sections, *i.e.* a hospital section and a chronic section, in connection with which there are to be provided a chapel, recreation hall, administrative centre, stores, kitchen, boiler-house, bath-house, laundry, workshops, staff-quarters, and isolation hospital. The buildings will cover an area of approximately forty acres. The site selected is a part of Greenman Farm on the Horton estate. The total area of the estate available for use in connection with the new asylum is some 234 acres. The asylums engineer's approximate estimate of the cost of the building and engineering work involved (excluding the cost of equipment) is £459,200. This estimate is based upon cubic measurements for the foundations, superstructure and drainage work, upon previous contracts so far as the engineering works are concerned, and for non-measurable items upon the cost of such works at Long Grove and elsewhere. The total is less by £30,320 than the actual cost of Long Grove asylum. The Asylums Committee are advised that a sum of about £50,000 will be required for the equipment of the asylum. The total approximate estimate of cost for construction and equipment therefore stands at £509,200, or £250 a bed.

It is now necessary that a quantitative estimate of the cost of providing the asylum should be prepared, in order that the Committee may be in a position to recommend the Council in due course to vote the necessary capital sum required. Before this estimate can be worked out, the working drawings, which will eventually require the approval of the Secretary of State, must be prepared. The cost of these with bills of quantities and a quantitative estimate will, it is estimated, be £5,250. The Committee, therefore, ask leave to incur that expenditure.

Hitherto the Council, though it has authorised expenditure on the preparation of preliminary plants, &c., has not definitely authorised the provision of further asylum accommodation, and until this has been done the Committee cannot take any of the necessary steps contemplated in section 254 of the Lunacy Act, 1890. The Asylums Committee feel that the time has arrived when the Council should formally authorise them to provide further asylum accommodation on the vacant site at Horton.

Allowing for the time which will be occupied in preparing plans and estimates, in securing the approval of the Secretary of State to the former, in obtaining tenders, and, finally, in actually building and furnishing the institution, it will take at least five years before the asylum is ready for the reception of patients.

THE INSTITUTION OF MUNICIPAL ENGINEERS, EASTERN DISTRICT.

The annual meeting of this district was held at Yarmouth on Saturday, July 22. Among those present were Messrs. W. T. Unwin (district chairman), W. Astley Norris (Swaffham), Andrew Paterson (St. Faiths), Solden Hipwell (Chatteris), A. W. Broker (Wimlington), S. G. Bloy (Mutford and Lothingland), T. Brown (Norfolk), A. W. Hobbs (East and West Flegg), R. Nelson (Norfolk), R. Gibson (Norfolk), R. G. Coates (hon. district secretary), and B. Wyand (secretary of the institution).

The first business to be taken was the election of district chairman and hon. district secretary, and the existing officers, Messrs. W. T. Unwin and R. G. Coates, were re-elected unanimously.

The following paper was then read:—

"Construction, Maintenance and Repair of Highways," by W. Astley Norris (member), surveyor to the Swaffham Urban District Council:—

I have been invited to offer a few observations upon the construction, maintenance and repair of highways, under the conditions of the traffic of the present period. In a paper of this description, addressed as it is to practical men, it is impossible for me to deal with the subject in a manner out of the usual course, and yet of sufficient interest to engage your attention; but I will endeavour to explain as briefly as possible the methods which I believe to be the best.

One of the most pressing questions at the present moment is the change which it is absolutely necessary to adopt in the making of macadamised roads in order to suit the altered conditions of the traffic passing over them. In recent years a more extended use of the highways has been made in this country, and the employment of traction engines, with wagons and heavy motor vehicles for conveying produce and merchandise, and also the greater use of fast-travelling motor cars, demand that some means be adopted for protecting and improving the road surfaces, thus making them more resistent against the greater amount of wear created by the ever-increasing form of new traffic. There is no doubt in my mind that in a great many instances inferior material procured from a local source has been used, with bad results, productive of mud and dust.

It will not do nowadays to apply macadam to a road surface without knowing how that material will wear, and it should be laid and consolidated in such a manner as to obtain the very best results so far as its wearing capacity is concerned.

The different classes of traffic which pass over our roads will have to be considered. It is only common sense that a length of road which carries heavy vehicular traffic near a city or town cannot possibly be compared with another length of road maintained with identically the same material carrying less traffic. There can be no model type of road which can be fitly adopted universally.

My practice is briefly as follows: Before spreading the granite or other material I fill up all potholes or uneven parts, so as to render the old surface as even as possible. The new material is then applied in the ordinary way, care being taken to see that every shovelful is evenly spread and thoroughly dry rolled until every stone is firmly bedded before the binding is put on. Just sufficient of this material is used to bed the stones, after which clean, ½-inch chippings to fill up the interstices, and swept about and rolled. We use good clean, sharp pit gravel for binding purposes.

When patching becomes necessary, as soon as a hollow appears, the roadman fills it with small stone, about 1½ inch, care being taken not to loosen the surface previously in any way.

Dust upon our highways will never be absolutely abolished; but we can and must reduce it. I have laid several dust palliatives, but do not think we have a remedy here sufficiently good, as I find that they answer admirably for a time, but when winter comes there is an increase in the mud on the roadways, and I fear that the wearing properties of the material are reduced considerably. Tar-macadam has been laid as a pavement in many towns and cities, but the cost would appear to make its application to county roads on a large scale prohibitive.

The most successful system is that of tarring furnace slag, introduced by Mr. E. P. Hooley. The method of preparing this road material, as in most cases of tar-macadam, is to thoroughly dry the stone by heating, and then to apply hot tar and mix thoroughly. Limestone was very extensively used at first, and selected for tar-macadam, on account of its absorbent properties, while dense, blast-furnace slag of best quality, a harder and comparatively better wearing material, has since been largely adopted.

Where roads have a good face, and it is possible to tar-wash the surface at least once every four months, tar as a surface binder will undoubtedly be a success. It will not, of course, make a weak road subject to disintegration from below a strong one. A road composed throughout of thoroughly tarred material will do all that surface treatment cannot do. The failure of tar-macadam has been in a great measure due to inability to get the tar to adhere to the material to be tarred. Moisture on the material or cooling of the tar means failure of adherence, and the use of soft materials which would adhere quickly means failure through the road giving way owing to inferior material.

In order to construct a good tar-macadam road it will be necessary to have an ordinary road as a bottom, or to form as good a foundation as possible. If a waterproof road is desired, then it must be of tarred macadam. The bottom layer can be 4-inch gauged material, laid and rolled, with the interstices filled up with finer tar-macadam, and the whole steam rolled. The second layer should be about ¾ inch in thickness of ⅝-inch tar-macadam, and left unrolled; on this should be applied a layer of 2¼-inch gauge tar-macadam, and rolled into the ⅝-inch, and when rolled ⅜-inch tar-macadam should be swept with a brush into every crevice or open joint. As a last coating, in order to join the face, a perfect layer of 1½-inch tar-macadam should be applied, and after the roller has passed twice each way over its face, ⅝-inch tar-macadam should again be swept into each crevice, so that a perfect surface is obtained.

Mr. R. G. Coates (Norfolk) said they all agreed that the use of dust palliatives did not warrant the expense incurred. He had tried surface treatment, but roads so treated required redoing every year, and here, again, the expense was unwarranted. He preferred spending the money which such treatment would cost upon the construction of tar-macadam roads. It was true that a very much smaller area could be dealt with yearly, but small sections of tar-macadam were, in his opinion, better in the end than long lengths of surface treatment.

Mr. A. Paterson (St. Faiths) said that in his district he had purchased tar-macadam at a cost of only 3*s.* per cubic yard over what they paid for ordinary macadam. The extra cost per yard super. of completed work averaged about 3*d.* Tar-painting cost over 1*d.* per yard super., and lasted only one year.

Mr. W. T. Unwin (March) had done in all about twenty acres of tar-spraying work. The secret of successful work lay in making the road good first. Then, when it was dry and had been well cleaned, spraying would be found fully effective and a great saving. Where wear was not excessive, painting work would last more than one year. Some tar-macadam which he had laid fifteen years ago, with the use of a horse-roller only, was practically now as good as ever. He agreed with Mr. Coates that the best thing was to spend in tar-macadam work the money allowed them, adding section by section until a road was completely done.

Mr. T. Brown (Norfolk), in proposing a vote of thanks to Mr. Norris, expressed the opinion that the expense of tar-macadam was against it, while to sectionise was to have pieces of good and bad road alternating. Mr. Coates must agree that tar-spraying enhanced considerably the life of a road. His practice was to paint hot when the surface was quite dry, and he never used chippings or similar material. His roads cost, roughly, £40 a mile per annum, and the saving of a year in their life was a valuable item.

Mr. A. Paterson (St. Faiths) seconded the vote of thanks.

A short discussion on the paper "Notes on Exhibits in the Royal Agricultural Show of Special Interest to Road Surveyors," which was read by Mr. A. Paterson at the Norwich meeting held last month, concluded the day's proceedings.

The next meeting of the district will be held, in conjunction with the North-Eastern District, at Peterborough in September.

THE communal authorities of Vienna have approved the plans for the erection of two tramway stations at a total cost of about £155,000.

THE late Mr. Charles Albert Bold, of Belfast, whose personal estate has been valued for probate at £1,545, left all the estate, after legacies amounting to £225 have been paid, to St. Alban's Church, Waterloo Road, Manchester, for the erection of a tower and spire.

THE Training College Sub-Committee of the Leeds Education Committee recommend the acceptance of the tender of Messrs. H. Atkinson & Sons, amounting to £10,247, for the erection of the hostel for women in connection with the Leeds Permanent Training College. The architects are Messrs. Percy Robinson & W. Alban Jones, of Leeds.

AFTER a Local Government Board inquiry the scheme of main sewerage and sewage disposal prepared by Messrs. D. Balfour & Son, civil engineers, of London and Newcastle-on-Tyne, for the Consett Urban District Council has been approved by the Local Government Board. The work includes the laying of several miles of sewers of cast-iron and fireclay pipes, as well as the construction of tanks and the laying out of a considerable area of land for the treatment of the sewage.

THE following particulars of projected works in Austria-Hungary are extracted by the *Board of Trade Journal* from the "Oesterreichischer Zentral-Anzeiger" (Vienna):—The city authorities of Budapest have decided to proceed with the erection of ten school buildings at a total cost of £257,500. The Budapest Spa authorities have accepted the plans for the erection of an hotel containing 100 rooms; the cost is estimated at £66,700, and work is to be commenced at once. The "Militär-Versicherungsgesellschaft" has decided to commence operations in the autumn of 1913 for the erection of a palatial building in Budapest at the corner of Karlsring and Dohánygasse; the cost is assessed at £208,000.

BUILDING PROGRESS IN THE PROVINCES.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit full particulars to Room 6, Imperial Buildings, Ludgate Circus, for insertion in this weekly list.)

ENGLAND.

BERKSHIRE.
Chaddleworth.—Church of England School enlargement.
Childrey.—Council School.
Coley.—Bathing place (£1,800). Mr. John Bowen, Borough Engineer and Surveyor.
Didcot and Faringdon.—Handicraft and Domestic Training Centres. Messrs. Bosher & Sons, contractors (£787, including centre at *Wallingford*).
Hermitage.—Council School.
Reading.—Wokingham Road School enlargement (£700).
Thatcham.—Council School.
Twyford Polehampton.—Council Schools enlargement.
Wallingford.—(See Didcot and Faringdon.)

CHESHIRE.
Macclesfield.—Industrial School Baths (£350).
Stockport.—Buildings for imbeciles and epileptics at Stepping Hill (£26,000).

CORNWALL.
Camborne.—Premises at Centenary Row.

HAMPSHIRE.
Alton.—Sewerage extension scheme (£1,500).
Portsmouth.—Forty-six Corporation cottages at Portsea.

HEREFORDSHIRE.
Colwall.—Golf links club-house.

KENT.
Ashford.—S.E. & C.R. Co.'s Railway Works. Messrs. Lovatt & Sons, contractors.
Gravesend.—Five houses in Darnley Road.
Ightham.—St. Peter's Church. New organ.
Willesborough.—Council School for 200 boys.

LANCASHIRE.
Bolton.—Lancashire and Cheshire Miners' Central Offices, Bridgeman Place (£6,000).
Chadderton.—Town Hall and public offices. Messrs. Taylor & Simister, architects.
Liverpool.—University Undergraduates' Union Central Hall (£3,500).
Maghull.—Epileptics' Home enlargement.
Townley.—Hospitals extension (phthisical pavilion, &c.). Messrs. William Townson & Sons., Ltd., contractors (£27,250).
Turton.—St. Anne's Church and Schools renovation and alterations (£750).
Wallasey.—Town Hall.

LINCOLNSHIRE.
Bilsby.—Sewerage scheme. Council Surveyor.
Burgh.—Wesleyan Church.
Louth.—Sewerage works.
Pointon.—Houses for the Council.
Scunthorpe.—Congregational Church (£3,500).
Waddington.—Methodist Sunday School.

MIDDLESEX.
Hounslow.—Schools. Education Committee Architect.
Tottenham.—Two schools for the Education Committee (£50,000).

NORTHAMPTONSHIRE.
Daventry.—Council School for 250 scholars.

NORTHUMBERLAND.
Bedlington.—Parish Church restoration.
Newcastle.—London Joint Stock Banking premises. Mr. W. H. Brierley, F.R.I.B.A., architect. Mr. Thomas Lumsden, contractor.
Tynemouth.—Fish quay extension (£6,000). Messrs. J. Watt, Sandeman & Son, engineers.
Wallsend.—N.E.R. Co.'s Station improvements. Mr. William Bell, architect.

STAFFORDSHIRE.
Great Barr.—Council School for 125 children.
Perry Barr.—Council School for 100 children.
Upper and Lower Penn.—Council School for 300 children.

SURREY.
Burhill.—Whiteley Homes for 600 to 700 poor people.
Guildford.—Alterations to 39 High Street. Messrs. Rake & Cogswell, architects. Mr. A. M. Johnson, contractor (£505).
Merton.—Nelson Hospital.
Mitcham.—Proposed Central Fire Station (£2,000, including site).

SUSSEX.
Eastbourne.—Princess Alice Memorial Hospital extension to provide 20 beds (£4,500).
Headley.—Council School at Deadwater.
Lancing.—Sewerage scheme. Mr. Alford, C.E., engineer.
Milland and Rake.—School alterations.
Rustington.—Church Schools enlargement (£1,000).
Shoreham.—Council School alterations for 120 additional children.
Steyning.—Grammar School alterations. Messrs. F. Sandell & Sons, contractors (£1,935).
Upper Beeding.—Council School enlargement.
Westbourne.—Council School.

WORCESTERSHIRE.
Barnt Green.—Police Station. County Surveyor.
Evesham.—Ten cottages for the Duke of Orleans.
Warley.—Police Station. County Surveyor.
Wythall.—Police Station. County Surveyor.

YORKSHIRE.
Maltby.—Mission Church for 500 (£2,500).
Scholes.—Temporary school at Barwick-in-Elmet. The County Education Architect.
Sheffield.—Royal Hospital extensions (£10,000).
Wakefield.—Workhouse Infirmary enlargement for 74 (£8,000).

WALES.

Aberkenfig.—Council School for 150 scholars.
Cilfrew.—Council School for 200 scholars.
Cwrt Sart.—Council School for 750 scholars.
Kenfig Hill.—School enlargement for 150 scholars.
Nantymoel.—School enlargement for 120 scholars.
Pwllheli.—One hundred and twenty houses on the Abererch Road.
Curing sheds on the Glanydon Road.

SCOTLAND.

Dundee.—Church and Hall for the Kirk-Session of St. John's (Cross) Church and others.
Office for the Dundee and District Co-operative Coal Corporation.
Dwelling-houses, Provost Road.
Edinburgh.—Board School for 130 children at Viewforth.
Town Hall for Portobello (£4,000).
Forfar.—Public Baths Recreation Hall.
Glenogil.—Waterworks keeper's house.
Irvine.—Hosiery Manufacturing Co.'s warehouse extensions (£1,500).
Kirkconnel.—Sewerage works. Messrs. Crouch, Hogg & Easton, C.E., engineers.
Linlithgow.—Bridgend School, drill hall, manual instruction, and cookery rooms (£1,000).

IRELAND.

Castletown Berehaven.—Block of three dwellings.
Ennis.—Seventy-six houses.

A GUIDE TO DECORATION.

MESSRS. THOS. PARSONS & SONS, Long Acre and Mitcham, Surrey, have just produced a clever device for enabling architects and their clients to estimate as far as a drawing can do the effect of various schemes of colour decoration. A drawing of an interior in which parts are permanently printed in grey and white has transparent spaces behind which a series of slides can be placed showing a combination of three different tints on each slide, for frieze, filling, and dado. Thus each scheme shows the effect of white woodwork with coloured wall surfaces. The white is intended to be in Endelline enamel and the colours in Endelflat or Endelline enamel. The specimen combinations supplied are well chosen and harmonious, exhibiting some of the walls in bright light and portions in different degrees of shadow. By this means the general effect is admirably shown, but the device could, of course, be readily applied to any other combination that might be fancied. It is easy enough to obtain a harmony of colours; in theory the combined effect is excellent, but when the work is finished there is at times a disappointing result; this ingenious little device will obviate this, and we advise all who are interested to possess themselves of one of these cards.

THE L.C.C. COUNTY HALL.

The London County Council on May 23, 1911, authorised the Establishment Committee to approve the list of firms to be invited to submit, and to invite therefrom, tenders for the construction of the substructure of the new county hall. The Committee have now considered the tenders referred by the Council on July 11, which were received from the firms selected. The particulars of the tenders are as follows:—

	A.				B.
J. Carmichael . . .	£64,587	0	0	...	—
F. & H. F. Higgs . .	62,313	0	0	...	5% above schedule.
H. L. Holloway . .	59,998	0	0	...	—
Holland & Hannen .	59,515	0	0	...	Schedule.
G. E. Wallis & Sons .	59,495	0	0	...	,,
Higgs & Hill . . .	57,668	0	0	...	—
Foster & Dicksee . .	54,526	0	0	...	Schedule.
Kirk & Randall . .	54,000	0	0	...	,,
Patman & Fotheringham	53,960	0	0	...	,,
John Mowlem & Co. .	53,496	0	0	...	,,
Leslie & Co. . . .	52,639	0	0	...	,,
Holloway Bros. (London)	51,720	0	0	...	,,
Charles Wall, Ltd. .	47,738	0	0	...	,,

A.—Amount of tender for substructure of section A, raft foundation work, &c.

B.—Rates for substructure of sections B and C.

Messrs. Trollope & Colls were unable to accept the invitation to tender.

The architect's estimate comparable with the tenders amounts to £56,000.

The tenders have been carefully examined, and the Establishment Committee are of opinion that the lowest, that of Charles Wall, Ltd., amounting to £47,738, should be accepted. Messrs. Wall propose to sub-let certain portions of the work.

The work included in Messrs. Wall's tender comprises the construction for £43,668 of the substructure of the first section (A) of the new building, and the completion for £4,070 of the raft foundation work and retaining wall in Belvedere Road, north of Guildford Street. The form of tender required tenderers to state the prices at which, in the event of the Council accepting their tender for section A, they would be prepared to construct the substructure for the remaining sections B and C, and the Council can, by notice in writing, require the contractors to enter into a contract to carry out the construction of section B or of sections B and C at the prices stated in the tender for section A. It will be seen from the foregoing list that Messrs. Wall are prepared to construct the substructure for sections B and C under the schedule of prices included in their tender for section A. The Committee are advised that this offer is reasonable, and recommend the Council to accept Messrs. Wall's tender for the whole of the work.

The contract with Messrs. Wall will provide that they shall complete the several portions of the work within certain periods specified in their tender. The Committee attach great importance to the work being pressed on with all despatch, and in this connection they advise the suspension of standing order No. 96, which prescribes that the Council shall not vote on a recommendation involving an expenditure on capital account exceeding £5,000 until seven days after the report shall have been laid before the Council. Other work connected with the substructure and not included in the present contract is estimated to cost £32,000. The expenditure of £4,070 in respect of the completion of the raft foundation is provided for in the estimate of £56,900, approved on April 6, 1909. Provision is made in the capital estimates for the current financial year for so much of the expenditure (£24,200) as will probably have to be met before March 31, 1912. The remaining expenditure will probably become due as follows:—£62,700 in 1912-13, £15,200 in 1913-14, and £6,000 (retention money) in 1914-15. The Establishment Committee recommend—

(*a*) That the operation of standing order No. 96 be suspended in order that the following recommendations (*b*) and (*f*) inclusive may be dealt with.

(*b*) That the estimate (No. 6985) of expenditure on capital account of £104,000 submitted by the Finance Committee in respect of the construction of the substructure of the new county hall be approved as an estimate of costs, debt or liability under section 80 (3) of the Local Government Act, 1888.

(*c*) That expenditure on capital account, not exceeding £104,000, be sanctioned for the purposes referred to in resolution (*b*).

(*d*) That the tender of Charles Wall, Ltd., amounting to £47,738, for the construction of the substructure of section A of the new county hall and the completion of certain raft foundation work, retaining walls, &c., be accepted; that the solicitor do obtain the execution of a contract to give effect to the tender, and that the seal of the Council be affixed to the contract.

(*e*) That, on the completion of the contract referred to in resolution (*d*), notice in writing be given to the contractors requiring them to carry out the construction of the substructure of sections B and C at the schedule of prices included in the said contract for section A; that the solicitor do obtain the execution of the necessary contract or contracts, and that the seal of the Council be affixed to the contract or contracts.

(*f*) That consent be given to Charles Wall, Ltd., to sub-let portions of the work referred to in resolution (*b*) as follows—(1) the granite work to Messrs. Freeman & Co. and (2) the asphalting work to such persons or firms as may be approved by the architect under the contract; that the solicitor do prepare the agreement prescribed by standing order No. 269, relative to sub-letting; and that the seal of the Council be affixed to the agreement.

The report of the Finance Committee under standing orders is to the following effect:—

The Finance Committee, having considered in its financial bearings the above-mentioned estimate, submit the same as chargeable to capital (original outlay) account. The approximate total estimated cost of the scheme for the new county hall, approved on April 14, 1908, is £1,412,000, exclusive of any expenditure in connection with the area at present occupied by Messrs. Holloway Bros. Up to the present date, specific estimates have been approved amounting to £745,065, while the actual expenditure incurred has amounted to £654,658 to June 30, 1911.

BANK HOLIDAY ARRANGEMENTS.

Return tickets at reduced fares, available for 14 days, will be issued to Brussels *viâ* Harwich and Antwerp. Passengers leaving London in the evening reach Brussels next morning. For visiting Holland special facilities are offered by the British Royal Mail Harwich-Hook of Holland route. From the Hook of Holland through carriages and restaurant cars are run to The Hague and Amsterdam in the North and South German express trains to Cologne, Bale, Hamburg, Halle (for the Harz Mountains), and Berlin. The Danish Royal Mail steamers of the Forenede Line of Copenhagen will leave Harwich for Esbjerg (on the West Coast of Denmark) on Friday, August 4, and Saturday, August 5. The Central Steam Navigation Company's steamers will leave Harwich for Hamburg on Wednesday, August 2, and Saturday, August 5. The Swedish Royal Mail steamers will leave Harwich for Gothenburg on Saturday, August 5.

The South-Eastern and Chatham Railway will issue special excursion tickets to Paris, *viâ* Folkestone and Boulogne, by the services leaving Charing Cross at 10.0 a.m. and 2.20 p.m. on August 3, 4, 6, and 7, and at 10.0 a.m. and 2.50 p.m. on Saturday, August 5. The tickets will also be issued by the night mail service leaving Charing Cross at 9.0 p.m. each evening from August 3 to 7 inclusive, *viâ* Dover and Calais. Cheap tickets to Brussels by the Calais, Boulogne, and Ostend routes will be issued from August 2 to 7 inclusive, available for 14 days. Cheap return tickets, for Boulogne and Calais, available for 8 days, will be issued at Charing Cross from August 2 to 7, inclusive. Special cheap 8-day return tickets to Amsterdam, Scheveningen, The Hague, and other Dutch towns, *viâ* Queenboro' and Flushing (Royal Mail route), will be issued from August 2 to 7, inclusive, leaving Victoria and Holborn at 9.55 a.m. Cheap tours to the Belgian Ardennes by the Calais, Boulogne, and Ostend routes are also announced. During the holidays the Continental services will run as usual. The company have made elaborate home arrangements. Weekend tickets, available by any express train (mail and boat expresses excepted), to St. Leonards, Hastings, Winchelsea, Canterbury, Sandwich, Walmer, Dover, and many other stations will be issued from London and certain suburban stations, on August 4, 5, and 6, available for return on August 6, 7, 8, and 9. Cheap day excursions on Bank Holiday will be run from the principal London stations. Return tickets (including admission) will be issued from London to the Festival of Empire at the Crystal Palace (High Level) on Bank Holiday. Full particulars of the excursions, alterations in train services, &c., are given in the special holiday programme and bills.

For the many thousands of holiday makers who will take advantage of August Bank Holiday for a desirable change, the Great Central Railway Company have just published a most varied choice of excursion arrangements to all parts of their system. A perusal of their special A.B.C. programme reveals the extensiveness of the facilities offered to over three hundred towns and holiday resorts in the Midlands, Yorkshire, Lancashire, and the North of England. Special trains will leave Marylebone at convenient times on Friday, Saturday, Sunday, and Monday, August 4, 5, 6, and 7, and these express trains are equipped with restaurant cars, enabling passengers to obtain refreshments at the most moderate tariff. For those who wish to spend a pleasant day or week-end nearer home suitable excursions are arranged to many picturesque and historical places in Middlesex, Herts, and Beechy Bucks. This tract of delightful country, with its old-world villages, breezy heights, and peaceful vales, is admirably suited for walking and cycling, and special cheap fares are in operation for both the walker and cyclist.

Copies of this special holiday programme may be obtained at Marylebone Station, or by post from Publicity Department, 216 Marylebone Road, N.W.

TRADE NOTES.

UNDER the direction of Mr. W. A. H. Masters, F.R.I.B.A., Swindon, Boyle's latest patent "Air-Pump" ventilators have been applied to St. Luke's Church, Swindon.

MESSRS. JAMES RITCHIE & SONS, lift makers, inform us that owing to the steady increase in their business they have been compelled to take larger and more commodious premises at 34 Surrey Lane, Battersea, London, S.W.

MESSRS. JONES & ATTWOOD, of Stourbridge, have purchased the business of Messrs. Birch, Killon & Co., hydraulic engineers of Manchester, and the staff has been transferred to Stourbridge. Mr. H. Birch Killon has been appointed consulting engineer and manager of the municipal department of Messrs. Jones & Attwood's business.

MESSRS. THOMAS SKIDMORE & SON, of the Staffordshire Safe Works, Wolverhampton, have just issued a new price list giving full particulars and dimensions with price of their twelve-corner bent steel fire, fall, and thief-resisting safes, They are also makers of bullion chests, strong rooms and strong-room doors, &c.

MESSRS. WM. DUNCAN TUCKER & SONS, LTD., of Laurence Road, South Tottenham, N., horticultural engineers, timber merchants, &c., finding that many of their customers complain of difficulty in telephoning them, have had an extra line fitted. Their telephone numbers are now Tottenham 2 and 3 and 53—three lines.

A NOVEL apparatus, adapted for either cesspool emptying or road-watering, has just been placed on the market by Messrs. Merryweather & Sons. It consists of a cylindrical tank of 300 gallons capacity mounted on a four-wheeled van, on which an air pump is also fitted. For cesspool work a vacuum is created in the tank by means of the air pump, and on suction piping being dropped down the cesspool the contents are drawn up into the tank without contaminating the atmosphere in any way. The water spreader is fitted at the rear of the tank, and the water can be turned on and off from the driver's seat in the usual manner. The vacuum system of cesspool emptying was introduced into this country by Messrs. Merryweather about fifteen years ago, and the apparatus has since met with considerable success. The addition of a water-spreader constitutes a new and useful departure.

VARIETIES.

THE L.C.C. contemplate erecting at a cost of £459,200 a new lunatic asylum at Epsom.

As a Coronation Memorial the ancient porch of Hintlesham Church, Suffolk, has been restored under the superintendence of Mr. J. S. Corder, architect, Ipswich.

COUNT PLUNKETT, Hon.A., R.I.B.A., has been unanimously elected President of the Museums Association for the year 1911-12.

THE Bank of New South Wales, the oldest banking Institution in Australia, has removed from Old Broad Street to its new offices at No. 29 Threadneedle Street, London, E.C.

THE church of All Saints, Highgate, London, N., is to be enlarged by the addition of 205 sittings at a cost of £2,500. A faculty has been granted in the Consistory Court for the scheme.

THE Durham County Education Committee have decided to purchase Glebe Hall, a site containing thirteen acres, at a cost of £1,000, and to erect a school for mentally defective children.

THE District Council of Hendon have applied for powers to borrow from the Local Government Board £14,656 for the purchase of land for provision at Child's Hill of working-class dwellings.

THE *Gazzetta Officiale* (Rome) of July 6 publishes a decree allocating in favour of the Ministry of Public Instruction a sum of £120,000 for the construction of buildings in the Royal University of Rome. The operations will extend over a period of five years.

NEGOTIATIONS have been concluded for the purchase of a site at Cefn Coed for an asylum to be erected jointly by the Swansea and Merthyr Corporations. Mr. G. T. Hine, of London, has been appointed architect for the building.

AMONG the wills recently proved is that of Mr. James Towner, builder, of Brighton, £64,421. Mr. Towner leaves residue of his estate, about £50,000, to Brighton charities (net personalty, £35,051).

AT a meeting of the Governors of the South-Eastern Agricultural College, held at Wye, last week, the plans of proposed new buildings, forming part of a new quadrangle, were passed, and orders were given to commence the work at once.

THE Government Works Department of New South Wales has in hand, authorised or immediately contemplated, works valued at £5,652,927, and the building trade generally is very active.

THE Docks Committee of the Bristol City Council recommend the provision of further cold storage accommodation at an estimated cost of £20,000, and to borrow £30,000 for the equipment of the west wall of the Royal Edward Dock with sheds, sidings, &c.

THE agreement between the Surrey County Council and the Weybridge Urban District Council with respect to the erection of a technical institute has been agreed to by the latter body. The Council will sell to the County Council the approved site at the rear of their offices for £550; and of the total cost of the building, £4,840, the county will contribute £1,300, the cost of the special subjects centre for elementary scholars, and one-half of the balance, leaving Weybridge to find £1,770.

THE Sheffield Electric Lighting Department are about to ask for a further £61,000 to be expended on extensions. The scheme includes £16,800 for three new boilers and accessories, £2,500 for three economisers, £3,800 for pipework, £20,000 for one 4,000 to 6,000 k.w. turbo-alternator, £4,600 for switchboard, £980 for machine cables, and £9,275 for buildings.

SERIOUS defects have recently been noticed in the tower of the parish church, Newdigate. The two southern piers are completely decayed, and the whole structure has worked loose. Dry rot has invaded the flooring and seats, and the roof also needs repair. The Rector and churchwardens, having considered the question with Mr. Creed, the church architect, have decided to put the work of repairing the tower in hand at once.

THE Southampton Harbour Board last week considered the eleven tenders for the reconstruction of the town quay. The highest tender was £19,822, and the lowest, of £14,391 2*s.* 3*d.*, was sent in by Messrs. Henry Lovatt, Ltd., London and Wolverhampton. The Board provisionally accepted that tender, subject to the detail drawings of the proposed reconstruction being approved by the Board's engineer.

THE Galashiels Cycle Parade and Pageant Committee last week considered the designs received for the Braw Lads' Burns Memorial, which it is proposed to erect at the foot of Lawyers' Brae. About thirty different designs and models in wax were sent in by thirteen sculptors resident in London, Glasgow, Edinburgh, Aberdeen, Dundee, Kirkaldy, and Inverkeithing, at estimated prices ranging from £170 to £350. It was agreed to appoint a sub-committee to go more carefully into the matter, and make a recommendation.

THE Mayor of Hampstead on Wednesday last laid the foundation-stone of the new buildings which are to be erected as an extension of the Hampstead Town Hall, with a view to concentrating all the municipal offices under one roof. The cost of the building will be £15,000 and the site has cost £3,500. Mr. John Murray, F.R.I.B.A., is the architect.

THE

Architect and Contract Reporter.

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EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

TENDERS, ETC.

⁂ *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Aberystwith.—Aug. 21.—The Town Council invite competitive designs for the proposed conversion of the Militia Barracks, Aberystwith, into "workmen's dwellings." Premiums of £15 and £5 are offered. An assessor is to be appointed by the Council. The premiated designs are to become the absolute property of the Town Council. The first premium will, if the architect be employed to carry out the work, merge into his commission (to be agreed upon), on the cost of any of the works the Council may decide to carry out. Designs are to be sent, carriage paid, to the Town Clerk not later than August 21. Further particulars can be inspected at the offices of the Town Clerk.

Athens.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l.* A first prize of 800*l.*, and a second prize of 320*l.* will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

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Egremont.—Aug. 8.—The Urban District Council offer premiums of £40 and £10 for a scheme to lay out, under the Housing of the Working Classes Act, building sites at Egremont and Bigrigg. The Egremont site consists of 1 acre, 1 rood, 16 poles, and the Bigrigg site 3 acres, 1 rood, 28 poles. Further information may be obtained from the Surveyor, Town Hall, Egremont, Cumberland.

Newcastle-upon-Tyne.—The Education Committee invite competitive plans from architects practising in Newcastle for a Senior Mixed School and a Junior Mixed School, each to accommodate 365 children, at Walker Gate. Mr. Spurley Hey, secretary, Education Offices, Northumberland Road, Newcastle-upon-Tyne.

Skegness.—Sept. 5.—The Executive Committee invite architects to submit competitive designs and estimates for the proposed Cottage Hospital. Building to cost £900. Premium for design placed first, £15 15*s.* Designs to be sent in by Sept. 5 to Mr. W. W. Robinson, hon. secretary, Capital and Counties Bank, Skegness.

CONTRACTS OPEN.

Abergavenny.—For erection of house on the corner of Ross Road and Alexandra Road. Mr. B. J. Francis, architect, Linden House, Abergavenny.

Athelney (Somerset).—Aug. 8.—For erection of a house at Athelney, Somerset, for the Great Western Railway Co. Plans of the Engineer at Taunton Station. Tenders to Mr. A. E. Bolter, secretary, Paddington Station, London.

Barwick-in-Elmet (Yorks.).—Aug. 10.—For the following works in connection with the Barwick-in-Elmet, Scholes, temporary school—boundary walls, conveniences, &c. (builder and joiner). Deposit £1. Education Architect, County Hall, Wakefield. The Clerk of the County Council.

Beckermet (Cumberland).—Aug. 12.—For the various works required in erection of eleven cottages and branch shop at Beckermet, for the Egremont Industrial Co-operative Society, Ltd. Messrs. W. G. Scott & Co., architects and surveyors, 2 Park Lane, Workington.

Bedwas (Mon.).—For erection of residence at Bedwas (Mon.), for Mr. W. Davies. Deposit of £2 2*s.*, which will be returned on receipt of a *bona-fide* tender to Mr. J. T. Jenkins, M.S.A., architect and surveyor, Porth, Glam.

Belfast.—Aug. 10.—For new schools on the Cregagh Road, for the Willowfield Select Vestry. Messrs. M'Carthy & Brookes, surveyors, Scottish Provident Buildings, Belfast.

Bonnybridge (Scotland).—Aug. 7.—For houses to be built at Peathill, Bonnybridge, for the Bonnybridge Co-operative Society, Ltd. Plans from Messrs. A. & W. Black, architects, Falkirk.

Birmingham.—Sept. 6.—For erection of two homes for infants at the Cottage Homes, Marston Green, near Birmingham, for the Guardians. Deposit £2, to Mr. C. Fletcher, clerk, Parish Offices, Edmund Street. Messrs. C. Whitwell & Son, architects, 3 Newhall Street, Birmingham.

Bradford.—Aug. 9.—For erection of medical officer's residence at the City Hospital, Leeds Road, for the Corporation. Drawings obtained of City Architect, Town Hall, Bradford.

Bury (Lancs.).—For erection and completion of shop and three houses in Walmersley Old Road, Bury, for the Bury and District Co-operative Society, Ltd. Mr. W. E. Gill, architect, 6 Fleet Street, Bury.

Castleford.—Aug. 10.—For alterations and repairs (joiner and asphalter) at the Castleford Wheldon Lane Council school, for the West Riding Education Committee. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Castlewellan (Ireland).—For additions and alterations to Manse, Castlewellan, co. Down, for the committee of Presbyterian Church. Messrs. Hobart & Heron, architects, Scottish Provident Buildings, Belfast.

Chadderton.—Aug. 12.—For the work to be done in the construction of 115 lineal yards of brick culvert, 4 feet 8 inches diameter, at Hunt Clough, for the Chadderton Urban District Council. Mr. H. Hoyle, clerk, Town Hall, Chadderton.

Chatham.—August 8.—For erection of new bathrooms, lavatories, &c., at the Medway Union Workhouse, Chatham, for the Medway Board of Guardians. Mr. G. E. Bond, architect, 384 High Street, Rochester.

Chester.—Aug. 7.—For proposed alterations and additions to St. Thomas' Schools, Walpole Street, Chester. Rev. H. E. Burder, St. Oswald's Vicarage, Chester.

Dartford.—Aug. 15.—For erection of a stamping station for weights and measures, in Kent Road, Dartford (consisting of two rooms), for the Weights and Measures Committee of the Kent County Council. County Architect, 86 Week Street, Maidstone.

Dover.—Aug. 19.—For erection of infants' school at Bulwark Hill, Dover, for Town Council. Deposit £2 2*s.* Mr. W. C. Hawke, A.M.I.C.E., Maison Dieu House, Biggin Street, Dover.

Dublin.—Aug. 10.—For erection of one block of three dwellings at Castletown, Berehaven, Co. Cork, for the Commissioners of Irish Lights. Harbour Engineer's Office, Belfast. Deposit £2 2*s.* Mr. H. G. Cook, secretary.

Durham.—Aug. 10.—Tenders invited for alterations and additions to High Springwell House, for Mr. W. B. Forster. Mr. H. T. Gradon, architect, Market Place, Durham.

Eccles (Lancs.)—Aug. 26.—For erection of public baths in Cromwell Road, Patricroft, for the Baths Committee. Mr. E. Parkes, town clerk, Town Hall, Eccles, by payment of a deposit of £2 2*s.* Messrs. Brameld & Smith, architects, County Buildings, 4 Cannon Street, Manchester.

Exeter.—Aug. 8.—For the alteration of Council schools for the Devon Education Committee. Architect's Office, 1 Richmond Road, Exeter.

Halifax.—Aug. 7.—For provision of out-offices, lavatories, and baths at the Bermerside School, for the Education Committee. Plans of Mr. J. Lord, M.I.C.E., borough engineer, Town Hall, Halifax, upon payment of the sum of £5.

Halifax.—Aug. 14.—For the various works required in erection of two dwelling-houses in Station Road, Holywell Green. Plans of Messrs. C. F. L. Horsfall & Son, architects, Lord Street Chambers.

Heybridge (Essex).—Sept. 18.—For erection of a new public elementary school at Heybridge for 468 children, for the Essex Education Committee. Deposit of £2 2*s.* to Mr. F. H. Bright, clerk to the sub-committee, 53, High Street, Maldon. Mr. P. M. Beaumont, architect, 53 High Street, Maldon.

Honley (near Huddersfield).—Aug 15.—For erection of two semi-detached villas, Marsh Platt, Honley. Plans of Messrs. Lunn & Kaye, architects and surveyors, Huddersfield.

Ireland.—Aug. 8.—For erection of new wagon and carriage shops at Inchicore, Dublin, together with other incidental works, for the Directors of the Great Southern and Western Railway (Ireland). The new shops will be in two blocks, one covering an area of 5,300 square yards, and the other an area of 6,765 square yards, and will be constructed of brick, with steel roof trusses carried on steel columns. Deposit £2 2*s.* The Company's Engineer, Inchicore, Dublin.

Irvinestown.—Aug. 8.—For erection of twenty labourers' cottages and fencing twenty plots to same, for the Rural District Council. Plans of the clerk, Mr. T. Aitken, on payment of 5*s.* Two sureties required.

Landore (Glamorgan).—Aug. 8.—For the renewal of zinc roofing to platforms at Landore Station (Glam.), for the Great Western Railway Co. Office of the Engineer at Neath Station.

Launceston.—Aug. 7.—For erecting a new Council school at Launceston, for the Cornwall Education Committee. Mr. B. C. Andrew, architect, Biddick's Court, St. Austell.

Leamington.—Aug. 15.—For the extension of Leamington Spa Post Office, for the Commissioners of H.M. Works and Public Buildings. Drawings of postmaster at Leamington. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W., on payment of £1 1*s.*

Leeds.—For extensive alteration to the Red Hall, Guildford Street, Leeds, for Mr. Snowden Schofield, Victoria Arcade. Contractors desirous of tendering should send names to Mosleys, 6 Wormald Row, Leeds.

Llantarnam (Wales).—Aug. 12.—For erection of a residence near The Greenhouse, Llantarnam, for Mr. W. Richards, Pensylva, Llantarnam, near Newport (Mon.). Mr. A. G. Babbidge, architect and surveyor, Clarence Chambers, Pontypool. Deposit £2 2*s.*

Longton (Stoke-on-Trent).—Aug. 22.—For certain alterations to the Town Hall at Longton, for the Corporation of Stoke-on-Trent. Mr. E. B. Sharpley, town clerk, Town Hall, Stoke-on-Trent. Mr. J. H. Beckett, A.R.I.B.A., architect, Market Street, Longton. Deposit £2 2*s.*

Maryport.—Sept. 2.—For the proposed alterations and additions to Maryport Council School, also Netherton

(Maryport) Infants' Council School, for the Cumberland Education Committee. Drawings and specifications at the office of the architect, Mr. J. Forster, M.S.A., 13 Earl Street, Carlisle.

Portslade (Sussex).—Aug. 12.—For constructing a ward block and other work at the Infectious Diseases Hospital, Portslade, for the Hove Town Council. Mr. H. H. Scott, on deposit of £2 2*s*. Mr. H. Endacott, town clerk, Town Hall, Hove.

Radyr.—Aug. 9.—For the erection of a villa residence at Radyr, Glam., with garage, &c. Mr. W. H. Dashwood Caple, architect, 2 Church Street, Cardiff.

Rhosrobin, near Wrexham.—Aug. 12.—For erection of schoolroom, &c., at Rhosrobin, in accordance with plan and specification to be seen at Votty, Bersham Road, Wrexham, after July 29.

Rottingdean (Sussex).—Aug. 8.—For erection of four receiving homes and a separate infirmary on land adjoining the Warren Farm Schools, situate in the parish of Rottingdean, for the Brighton Board of Guardians. Deposit £5. Mr. J. W. Hawker, architect for the Guardians, 3 North Street Quadrant, Brighton.

Wales.—Aug. 9.—For erection of a villa residence at Radyr, Glamorgan. Mr. W. H. Dashwood Caple, architect, 2 Church Street, Cardiff.

Wallsend.—Aug. 5.—For erection of a ferro-concrete bridge over the Wallsend Burn. Conditions of contract to be inspected at Borough Surveyor's office, Town Hall, Wallsend. Drawings showing extent and nature of bridge on payment of 21*s*., returnable on receipt of tender. W. V. Mulcaster, Town Clerk, 28 Sandhill, Newcastle-on-Tyne.

Wallsend.—Aug. 8.—For improvements at Wallsend Station, for the North-Eastern Railway Co. Plans obtained upon application to Mr. William Bell, the company's architect, Central Station, Newcastle-on-Tyne.

TENDERS.

BOURNEMOUTH.

For the erection of Charminster Road International Stores. Messrs. George Baines & Son, architects, 5 Clement's Inn, Strand, London, W.C.

Bambridge & Son	£592	0	0
Mussellwhite & Sapp	543	0	0
Brown & Son	540	12	0
Tarrant	540	4	0
George & Harding	511	18	8
Jones & Son	510	0	0
Jenkins & Sons (*accepted*)	492	0	0

BRIGHTON.

For erection of new Presbyterian church. Mr. Edward Proctor, M.S.A., architect and surveyor, 83 St. Paul's Churchyard, London, E.C.

	Church.	Boundary Wall.	Total.	Months to Complete.
Battley, Sons & Holness	£6,398	£275	£6,573	10
Lawrence & Son	6,272	242	6,514	9
Chinchen & Co.	6,259	255	6,512	8
Holloway Bros.	6,230	252	6,482	12
Smith & Sons	5,885	225	6,110	6
Bugg & Sons	5,870	230	6,100	8
Parsons & Sons	5,854	238	6,092	9
Lynn & Sons	5,822	247	6,069	8
Field & Cox *	5,769	248	6,017	6½
Longley & Son	5,748	245	5,993	8
Barnes & Sons	5,749	237	5,986	9
Norman & Burt	5,708	224	5,932	9

Architect's estimate £6,000.

* Accepted on account of time.

COOKHAM DEAN.

For the erection of a residence for Mr. Walter Frost. Mr. H. Stanton Webber, architect, 23 Queen Street, Maidenhead.

Lovell & Son	£1,263	0	0
Cooper & Sons	1,225	0	0
Cox & Sons	1,213	0	0
Creed	1,127	0	0
Silver & Sons	1,114	0	0
Bissley	1,060	0	0
Harris, Marlow (*accepted*)	990	0	0

CHESHAM.

For erection of Council School and Special Subjects Centre at Chesham, for Bucks County Education Committee. Mr. C. H. Riley, Education Sub-office, Aylesbury. Quantities by Messrs. W. T. Farthing & Son, 46 Strand, W.C.

Lawrence & Sons	£8,553	0	0
Darlington	8,512	0	0
Rust & Ratcliffe	7,995	0	0
Lovell & Sons	7,942	0	0
Biggs & Sons	7,827	0	0
H. J. & A. Wright	7,825	0	0
Yirrell	7,598	0	0
Webster & Cannon	7,548	0	0
Tombs & Sons	7,483	0	0
Hunt & Sons	7,473	0	0
Honour & Sons	7,355	0	0
Mead, Chesham (*accepted*)	7,150	0	0

DURHAM.

For building a porter's lodge at the isolation hospital, Norman's Riding, for the Blaydon, Ryton and Whickham Joint Hospital Committee.

Browell	£217	0	0
T. H. Wilson (*accepted*)	198	10	0

EDGWARE.

For additions and alterations to the Edgware Council School, for the Middlesex County Council. Mr. H. G. Crothall, architect to the Education Committee.

Page	£2,358	0	0
Monk	2,065	0	0
Tribe & Co.	1,951	0	0
Knight & Son	1,877	0	0
Dickens	1,846	0	0
Tout	1,846	0	0
Neal	1,819	0	0
Try	1,814	0	0
Gibson & Co.	1,750	0	0
Lawrence & Son (*recommended*)	1,622	0	0

ENFIELD.

For the erection of a public library adjoining Cecil Road. Mr. Richard Collins, surveyor, Enfield.

Willmott & Co.	£5,092	0	0
Driver	4,775	7	4
Gluyas	4,644	0	0
Brand, Petitt & Co.	4,636	0	0
Jennings & Grenfell	4,479	0	0
Lawrence & Sons	4,388	0	0
Moss & Co.	4,208	10	0
Knight & Sons	4,179	0	0
Monk	4,123	0	0
Fairhead & Son	4,100	0	0
Fitch & Cox, Enfield (*accepted*)	3,949	0	0

KING'S LYNN.

For construction of a picture theatre. Mr. F. Burdett Ward, M.S.A., architect, 8 South Brink, Wisbech. Quantities by the architect.

Barnes & Co.	£1,665	0	0
Smith	1,650	0	0
Ives & Son	1,400	0	0
Hall & Lawson	1,360	0	0
Parren & Son	1,350	0	0
Tash & Langley	1,330	7	0
Wilkinson & Son	1,320	12	0
Shanks	1,300	0	0
F. & S. Dickerson	1,289	0	0
Read & Wildbur	1,285	0	0
Dye & Allen, King's Lynn (*accepted*)	1,284	0	0

KNEBWORTH.

For erection of Knebworth C.C. school, for the Hertfordshire County Council. Mr. U. A. Smith, M.I.C.E., county surveyor, Hatfield.

Ridout Bros.	£3,960	0	0
Trudgett	3,237	0	0
Fitch & Cox	3,181	0	0
Hitch	3,100	0	0
Love	3,097	0	0
Hacksley Bros.	2,952	0	0
Miskin & Son	2,887	0	0
Brown & Son	2,844	15	0
Henson & Son	2,807	5	0
Willmott & Son, Hitchin (*accepted*)	2,774	0	0

HULL.

For erection of training college for the Hull Education Committee.

PANTON & SONS, Ltd., Hull (*accepted*)	£40,287 0 0

LONDON.

For a further supply of sewer ventilating columns, for the L.C.C.

42 feet shaft.

Wellington Tube Works	each £53 0 0
Stone & Co.	51 7 0
Newton, Chambers & Co.	50 0 0
Piggott & Co.	46 15 6
Young & Co.	38 16 8
John Spencer, Ltd., Wednesbury	37 15 6

36 feet shaft.

Wellington Tube Works	each £51 0 0
Stone & Co.	49 4 0
Newton, Chambers & Co.	48 0 0
Piggott & Co.	44 15 6
Young & Co.	37 0 0
John Spencer, Ltd., Wednesbury	36 3 0

Pattern.

Stone & Co.	£52 15 0
Young & Co.	45 0 0
John Spencer, Ltd., Wednesbury	25 0 0
Piggott & Co.	25 0 0
Wellington Tube Works	22 10 0
Newton, Chambers & Co.	20 0 0

The Main Drainage Committee recommend that Messrs. John Spencer, Ltd., supply six ventilating columns, 42 ft. high, six columns, 36 ft. high, and a pattern of the ornamental bases and copes of the columns at the above prices be accepted.

For re-dividing classrooms, &c., at Haggerston Road Council School, Haggerston.

Leng	£1,308 0 0
Johnson & Co.	1,258 0 0
J. & C. Bowyer	1,233 0 0
Godson & Sons	1,229 0 0
Lawrance & Sons	1,228 0 0
Symes	1,182 0 0
HOLLIDAY & GREENWOOD, Brixton (*accepted*)	1,169 0 0

For the erection of a school for 408 children on the Malmesbury Road site (Bow and Bromley).

Wall	£10,332 11 10
Treasure & Son	10,330 0 0
L. H. & R. Roberts	9,961 0 0
Kirk & Randall	9,687 0 0
McLaughlin & Harvey	9,681 13 0
Holloway	9,644 0 0
Johnson & Co.	9,618 0 0
Lawrance & Sons	9,556 0 0
J. & M. Patrick	9,521 0 0
Symes	9,440 0 0
Leng	9,350 0 0
Patman & Fotheringham	9,343 0 0
J. & C. Bowyer, Upper Norwood, London (*recommended*)	9,086 0 0
Architect's estimate	9.109 0 0

For providing handicraft centre, carrying out repairs, &c., at St. Marylebone Grammar School.

H. & E. Lea	£940 0 0
Peattie & Son	928 7 0
Stewart	787 0 0
Bendon	675 0 0
Rice & Son	664 0 0
Roberts & Co.	660 0 0
Godson & Sons	595 0 0
Neal	590 0 0
MARCHANT, HIRST & Co., 135 Highgate Road (*accepted*)	558 0 0

SCOTLAND.

For the conversion of the old school at Downfield into a manual school, for the Mains and Strathmartine School Board.

Accepted tenders.

Kirkcaldy & Gargie, masons	£198 0 0
Bruce & Sons, joiners	159 0 0
John Murray, plumber	52 18 0
D. Macbeth & Sons, plasterers	24 0 0
Edward Robertson, painter	12 1 1
J. Laburn & Son, slaters	11 18 10

ST. ALBANS.

For the erection of St. Albans School of Art and Technical buildings, for the Hertfordshire County Council. Mr. U. A. SMITH, M.I.C.E., county surveyor, Hatfield.

Fitch & Cox	£2,420 0 0
Sharp	2,303 3 3
Drever	2,177 17 0
Chessum & Son	2,170 0 0
Hacksley Bros.	2,146 0 0
Parker & Son	2,127 0 0
Miskin & Son	2,067 0 0
Henson & Son	2,016 10 10
Blow & Peters	1,981 0 2
A. PITKIN (*accepted*)	1,968 0 0
Faulks	1,961 0 0

WALES.

For alterations and additions to The Mansion on the Garth-Angharad estate, near Dolgelly. Messrs. RALPH KNOTT & E. STONE COLLINS, architects, Adelphi Terrace House, Adelphi, W.C. Quantities by Mr. FREDK. S. HENNIKER, F.S.I., Adelphi Terrace House, Adelphi, W.C.

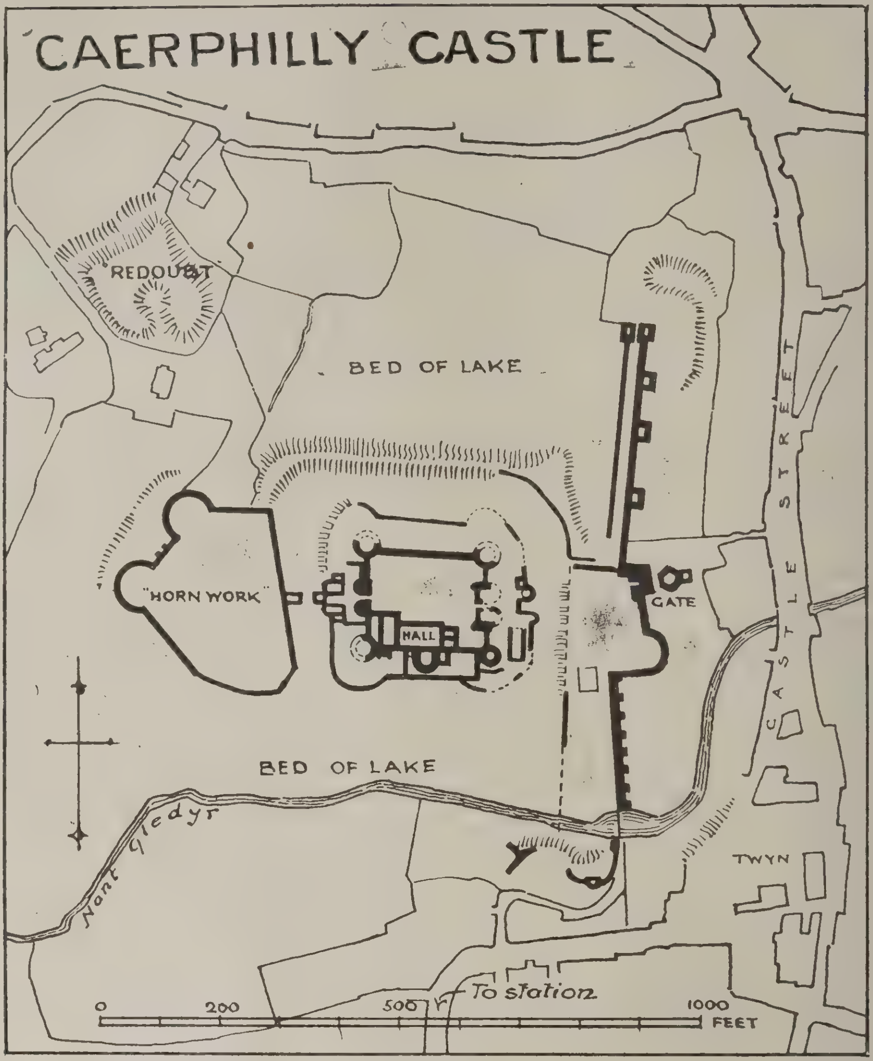
Turner & Sons	£17,524 17 2
Higgs & Hill	16,798 0 0
Parnell & Son	16,497 0 0
Thornton & Sons	16,279 0 0
DOVE BROS. (*accepted with modification*)	16,245 0 0

THE Electric Lighting Committee of Edinburgh Town Council recommend that the Town Council give from the surplus on the electric lighting accounts for the year ending May last such sum as may be required to meet the deficit on the Building Fund Account of the College of Art. Towards the cost of the building equipment, which is put down at £76,000 or £77,000, there has been obtained from Government £40,000, and by donations £20,000, leaving a sum of about £17,000 to be raised during the present year. On the Electric Lighting Committee's accounts there was a surplus of about £8,000. The Scottish Education Department are prepared, it is believed, to contribute a sum equal to that raised locally, so that if the total surplus on the electric lighting accounts were handed over towards the Building Fund the total cost could be met. It is expected that the building will be completed within the next few months.

THE Town Council of Edinburgh have adopted a recommendation made by the Electric Lighting Committee to vote out of the surplus of £8,430 made by that undertaking such a sum as, along with the cash in hand derived from local sources, will be necessary to meet one-half of the remaining sum required for building and equipment of the Art College.

A LARGE and influential committee was at a public meeting in Edinburgh appointed to inquire into the establishing of industries for Edinburgh and Leith. Owing to the absence of the Lord Provost, Colonel Trotter, Convener of the County of Midlothian, presided. It was agreed to prepare a pamphlet relating to the district—land, locomotion, water, gas, electricity, docks, coal and iron, &c. Mr. Robert Bruce said that if landlords and their advisers could see their way to be moderate with regard to the value of the buildings they required, it would be a manifest encouragement for new industries. The Chairman thought they had arrived at the stage when they could remit the different suggestions to the Committee for consideration to bring up a report as soon as possible.

IT having been decided that the London County Council was the authority to select a site for the proposed new Sessions House for London, and that the Standing Joint Committee should decide as to the building and its accommodation, the justices at the Sessions House, Newington, passed the following resolution at their quarterly meeting last week: "That, in view of the unsuitability of the Court House at Newington for the transaction of the judicial and criminal business of the whole County of London, and the continued delay in the provision of a suitable site and building for such purposes, the Chairman of Quarter Sessions be requested, and is hereby authorised, to take such steps as he may deem necessary." Mr. Clark, one of the justices, said the present accommodation at Newington was a disgrace to London. Mr. E. Smith, L.C.C., said the Council ought to make use of the valuable site upon which the disused Clerkenwell Courthouse stands.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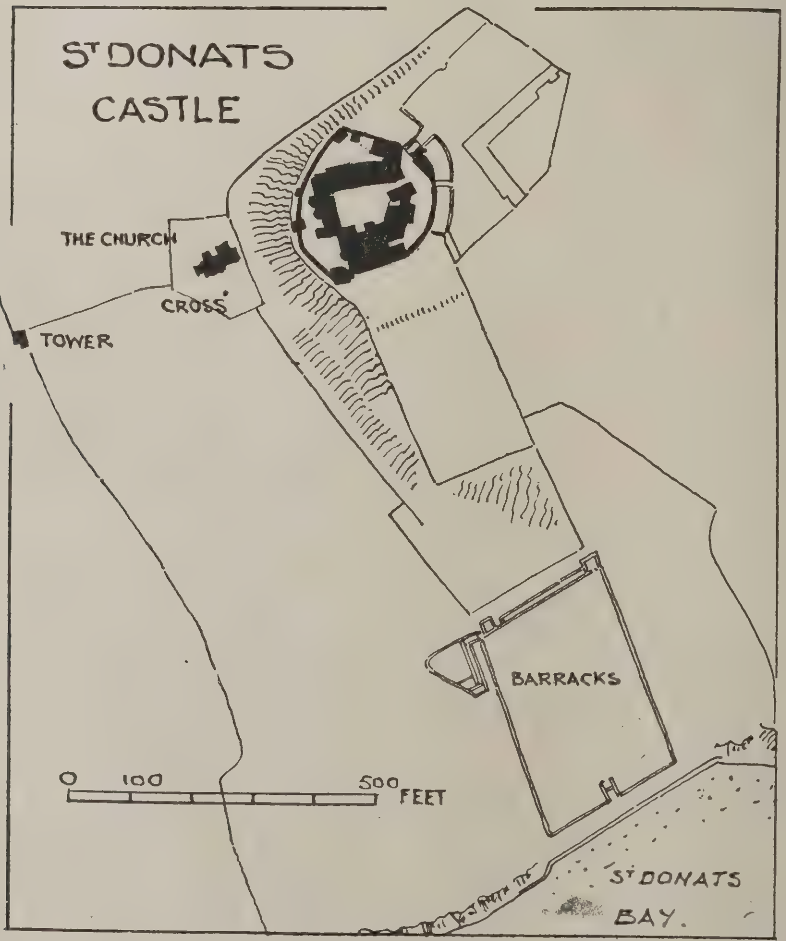
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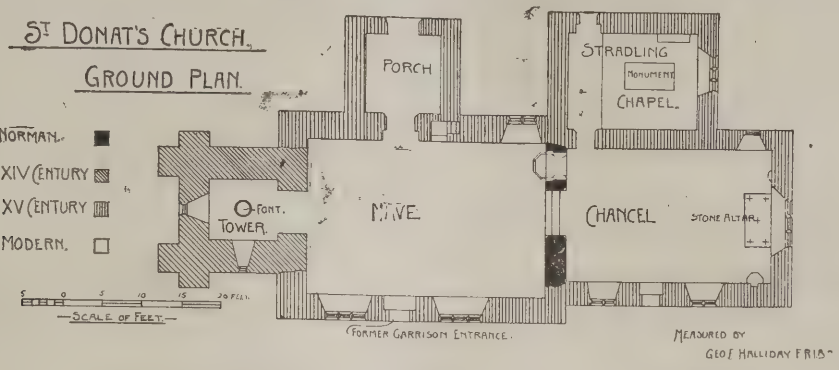

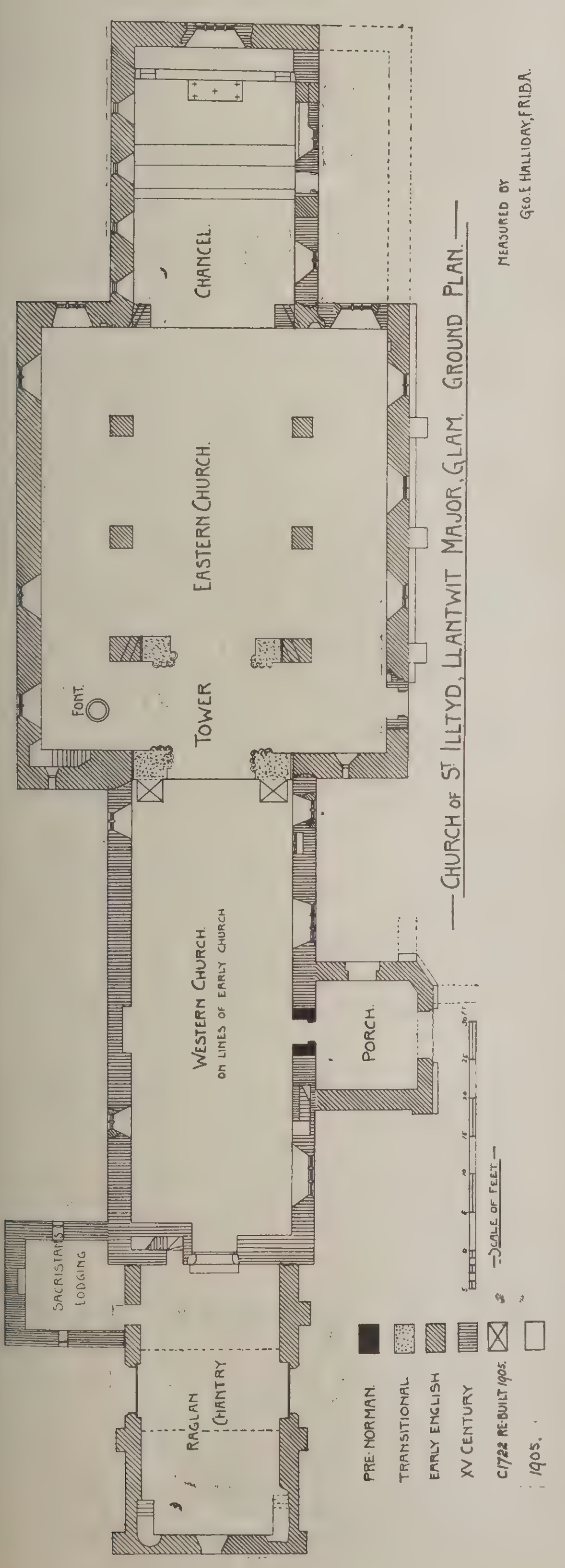

A DUST AND FIRE-RESISTING MUSEUM CASE.

For years scientists have been endeavouring to construct a museum case that would be dustproof, fireproof, and moth-proof. In the old style wooden-glass cases many valuable specimens of various kinds at different museums were destroyed because of inadequate protection. Dr. M. J. Greenman, director of the Wistar Institute of Anatomy and Biology at the University of Pennsylvania, has recently invented a metal-glass case, which (says the *Philadelphia Record*) it is claimed has all the qualities that the old-style cases lack. As rapidly as possible the new cases are being built and installed in the Wistar Institute.

Dr. Greenman constructed the new case after experimenting for twelve years. Already at the Dresden Museum cases of metal-glass have been introduced, but they are different from the American invention. Dr. Greenman's case is so built that it will resist fire. One of the greatest problems in the construction of the new case was to make it dust-proof and at the same time allow the air to enter. In order to do this the grooves into which the door frames of the sash shut are packed with absorbent cotton. In the cases in the Dresden Museum felt is used in place of cotton.

Experiments in the construction of metal cases are expensive, and therefore the majority of museums have not departed from the old methods of wood construction. All the joints of the new cases are cemented shut, and the steel is prepared by being pickled in diluted sulphuric acid to remove the scale. It is then drawn through a die and straightened. The finished product of cold steel is a bar of slightly smaller section and of increased stiffness, having a finish that is easily prepared for electroplating. The base frame of the case is supported upon six cast-iron feet having levelling screws, while at the eight corners of the cases special steel castings are inserted to give stiffness to the entire frame.

The door frames are dovetailed at the corners and brazed, and when the glass is clamped in they never sag, a possibility that has been frequently suggested. The case is polished and heavily copper-plated before it is erected. The copper is then coloured dark bronze by being dipped in a diluted solution of potassium sulphide, is rinsed, dried, and burnished with brass scratch brushes, and finally is given two coats of dip lacquer. The cost of one of the new cases is about the same as that of a similar case constructed of mahogany and plate glass. The supports of the new cases are inconspicuous, yet are sufficiently strong to carry the great weights that are often placed on them.

The Ramsgate Town Council are considering a proposal to build public baths on the site of the aquarium in the pier yard.

Serious damage was done to the workshops by fire on Monday afternoon of Messrs. Thorne Bros., builders and decorators, of the Terrace, High Road, Kilburn, N.W.

The Bristol Docks Committee have instructed their Engineer to prepare specifications and invite tenders for the erection of a shed and cold storage provision.

The new girls' high school at Crediton, which has been erected from the designs and under the supervision of Mr. Percy Morris, architect to the Devon Education Committee, was opened on Saturday last by Lady Audrey Buller.

The Surveyor to the Rowley (Staffs) District Council has issued demolition notices to the owners of a large number of houses damaged through mining subsidences, walls and roofs having been wrecked.

The new premises of the Royal Academy of Music in the Marylebone Road, W., which have been erected at a cost of £60,000, will be finished and ready for occupation in September.

BUILDING PROGRESS IN THE PROVINCES.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit full particulars to Room 6, Imperial Buildings, Ludgate Circus, for insertion in this weekly list.)

ENGLAND.

Berkshire.
Braywick.—Church of England schools (alterations).
Maidenhead.—Golf Club House additions and alterations.
House in Oldfield Road.
Shop and additions to shops, Market Street.

Buckinghamshire.
Buckingham.—Roman Catholic Church. Messrs. Pugin & Pugin, architects.

Cheshire.
Macclesfield.—Park Green Technical Schools: new Cookery Centre and Industrial Workshops. Mr. J. Clayton, architect.

Cornwall.
Launceston.—Council School. Mr. B. C. Andrew, M.S.A., architect.
Probus.—Wesleyan Chapel caretaker's residence. Mr. Sampson Hill, architect.
Redruth.—House at West Trewirgie. Mr. Leonard Winn, architect.
St. Day.—Water supply. Mr. Trestrail, engineer.
Truro.—Building at Back Quay. Mr. A. J. Cornelius, M.S.A., architect.

Cumberland.
Carleton.—Additions to house at High Scalesceugh. Mr. J. H. Martindale, F.R.I.B.A., architect.
Hensingham.—St. John's new church.
Maryport.—Council schools additions and alterations. Mr. J. Forster, M.S.A., architect.
Stanwix.—Four semi-detached houses.
Wigton.—Alterations to premises in King Street. Mr. J. H. Martindale, F.R.I.B.A., architect.

Derbyshire.
Youlgrave.—School alterations (£300).

Devonshire.
Plymouth.—Ear and Throat Hospital additions and alterations.
Public School, Cobourg Street.
Roseash and Stokefleming.—Council Schools alterations, drainage, &c. Mr. P. Morris, A.R.I.B.A., County Education architect.
Torquay.—Municipal Buildings (with Pavilion, £50,000). Mr. Davison, architect.
Pavilion (see above). Mr. H. A. Garrett, A.M.I.C.E., borough engineer and architect.

Dorsetshire.
Beaminster.—Caretaker's Residence for Public Hall (£250).
Blandford.—Territorial Association Headquarters.
Water supply extension (£4,000).
Wareham.—Territorial Association Headquarters. Mr. W. J. Fletcher, F.R.I.B.A., architect.
West Moors.—Schools at Ferndown.

Durham.
Durham.—Girls' Secondary School, Caretaker's House, &c. (£11,000).
Glake Hall, Helmington Row and Tursdale.—Council Schools.
Usworth.—Housing scheme.

Essex.
Chadwell St. Mary.—School. Mr. C. M. Shiner, architect.
Chelmsford.—Seven cottages, Bradford Street.
Six villas, Goldlay Road.
Stores and fitting shop, Broomfield Road.
Electric theatre and concert hall, Moulsham Street.
Public Library extension. Mr. F. Chancellor, F.R.I.B.A., architect (£600).
Workmen's dwellings. Mr. P. T. Harrison, Council surveyor.
Clavering.—School.
Grays.—Infants' School.
Great Burstead.—Church Tower restoration (£600).
Hadstock.—School for 100 children.
Harold Wood.—Dormitory at Convalescent Home. Mr. A. H. Fryd, contractor (£1,695).
Harwich.—County High School: Headmaster's House (£1,000).
Leigh.—Council School.
Messing.—Council School for 100 children.
Rochford.—Workhouse extensions (home for 30 babies and various day-rooms and wards for 82 classified paupers and the necessary staff) and kitchen and stores block.
South Hornchurch.—School enlargement. Mr. G. Brown, contractor (£1,456).
Thundersley.—School for 200 to 300 children.
West Thurrocks.—Infants' School.
Wickford.—School.

Hampshire.
Fleet.—Bungalow.
Sewerage scheme. Mr. Moss Flower, engineer (£24,000).
Southampton.—St. John's Council School. Mr. J. A. Crowther, borough engineer. Mr. J. Douglas, contractor (£3,600).

Kent.
Birchwood Corner.—Council School. Messrs. Podger & Sons, contractors (£2,156).
Loose.—Council School enlargements.
Maidstone.—Eighteen houses in Beaconsfield, Boxley and Florence Roads.

Lancashire.
Liverpool.—Council school, Rupert Lane.
St. Paul's Eye Hospital extension.
Y.M.C.A. buildings (£10,000).
Seacombe.—Presbyterian Church, with hall and classrooms (£4,600).
Sephton.—Church alterations, new baptistery, &c.

Lincolnshire.
Grimsby.—St. Luke's Church.

Middlesex.
Hanwell.—Conservative Club.
Isleworth.—Southall sewage works extension.

Monmouthshire.
Brynmawr.—Sewerage scheme (£7,250). Messrs. Taylor, Wallin & Taylor, engineers.

Northumberland.
Castleside.—St. John's Parish Church renovations.

Shropshire.
Cantlop.—Two cottages and six Dutch barns, &c. (£900).
Wellington.—Workhouse Infirmary additions. Messrs. Fleming & Son, architects.

Somersetshire.
Bedminster.—Roman Catholic Church and Schools. Mr. John Bevan, architect.
Portishead.—Council School.
Weston-super-Mare.—St. Paul's Church.

Surrey.
Epsom.—Lunatic Asylum (£460,000).
Guildford.—Council offices. Borough surveyor (£1,000).
Twelve cottages. Mr. Capp, architect (£2,000).
Eight cottages. Borough surveyor (£1,400).

Sussex.
Funtington.—Council School alterations (£525).
Haywards Heath.—Council Schools enlargement.
Horsham.—School extensions and new Infants' School (£3,220).
Lancing.—Public Elementary School.
Rustington.—School enlargement (£1,000). Mr. R. W. Wentworth Hyde, architect.
Westbourne.—Public Elementary School (£4,000). Mr. Roberts, architect.

Warwickshire.
Birmingham.—Picture galleries in Council buildings.
Tramway depôt. Messrs. Martin & Martin, architects.
Coventry.—138 artisans' dwellings (£30,000).
Earlsdon.—Branch Library.
Marston Green.—Two homes for infants. Messrs. C. Whitwell & Son, architects.

Worcestershire.
Evesham.—R.C. Church.

Yorkshire.
Altofts.—Elementary School for 300 children (£3,600).
Barnsley.—St. Mary's Parish Church Boys' School (£4,300).
Ilkley.—School enlargement for 50 scholars (£480).
Maltby.—Mission Church for 500 persons (£2,500). Mr. F. N. D. Masters, architect.
Mirfield.—Chapel of the Community of the Resurrection. Mr. Walter Tapper, architect.
Scunthorpe.—School (£11,000). Messrs. Dennis Gill & Son, contractors.
Skelbrooke.—School for 120 scholars (£1,440).

Stainton.—School for 80 scholars (£750).
Whitwood Mere.—Council School.

WALES.

Aberystwyth.—Golf club-house (£1,300).
Dunvant.—Three Crosses Independent Chapel extension and new vestry. Mr. W. David, architect.
Forden.—Workhouse infirmary.
Glanmor.—Swansea Training College (£40,000). Mr. G. E. T. Laurence, A.R.I.B.A., architect.

SCOTLAND.

Aberdeen.—School of Domestic Science extension (£10,000).
Balfron.—Smallpox Hospital.
School enlargement.
Water supply extension. Mr. Hogg, C.E., engineer.
Boharm.—Delfur Lodge rebuilding. Mr. Fowlie, architect.
Boroughmuir.—School.
Drymen.—School enlargement.
Edinburgh.—Art College.
Forgue.—Additions to steading. Mr. W. L. Duncan, architect.

COMPETITION NEWS.

Doncaster.—In a competition recently held for a new ree Christian church, schools, institute, and lecture hall t Doncaster, the designs submitted by Messrs. Alfred J. unn, F.R.I.B.A., & J. B. Mendham, of Clarendon hambers, Waterloo Street, Birmingham, were selected, and e architects have been instructed to proceed with the work.

The copings of a number of houses in a Chelsea street ll suddenly on Monday night.

The All-India Memorial to the late King Edward will be colossal bronze equestrian statue by Sir Thomas Brock. It ill be mounted on a pedestal of red sandstone, near the lexandra gate of the Delhi Fort.

The partnership hitherto existing between Mr. Cecil asey and Mr. Roy Young has been dissolved. Mr. Masey ontinues the practice at 4 Holles Street, Cavendish quare, W.

A new U.F. Church for Cardenden, Fife, N.B., is to be ected at a cost of about £3,000. Seating accommodation ill be provided for between 500 and 600 people. Mr. Charles arlow, Managing Director of the Fife Coal Co., laid the undation stone on Saturday last.

Following upon the electrification of the Manchester to ltrincham lines by the Great Central and London and orth Western Railways, it is reported that those companies, ith the Lancashire and Yorkshire Railway Co., contemplate her important electrification projects in the Manchester istrict.

The "Gaceta de Madrid" of July 20 contains a decree uthorising the General Directorate of Posts and Telegraphs arrange for the erection of a general postal telegraph uilding in Pontevedra. The cost of construction is put 289,000 pesetas (about £10,500). The municipal authories of Pontevedra are granted four months to arrange for competition of plans among Spanish architects, and two nd a-half years will be allowed for the completion of the ork from the date of the approval of the plans.

His Majesty's Trade Commissioner for Canada reports hat a proposal is shortly to be submitted to a poll of the tepayers of Winnipeg for the building of an annexe to the own Hall, at a cost of some $500,000 (about £103,000). It anticipated that a new Town Hall will have to be erected the course of a few years, and if the proposal for the nnexe is approved a competition will shortly be opened of lans for both the annexe and the future Town Hall, which gether are to form one complete scheme. Communications this connection should be addressed by British firms to e City Engineer, Winnipeg.

In connection with the principal contract for the conruction of Peterhead waterworks, executed about three ears ago by Messrs. Shanks & MacEwan, contractors, Glasow, considerable differences arose between the Town Coun-l's engineer, Mr. Ironside, and the contractors, when the nal statements showing the value of work executed came to prepared. The contractors claimed £26,407 11*s.* 6*d.*, and e engineer allowed £19,766 19*s.* 4*d.*, showing a difference of 6,640 12*s.* 2*d.* The claim was referred to the sole arbitraon of Mr. W. A. Carter, C.E., Edinburgh, who has issued s findings setting forth that Messrs. Shanks & MacEwan are titled to £644 13*s.* in respect of their claim of £6,640 12*s.* 2*d.*

CANTERBURY AND WHITSTABLE RAILWAY.

An interesting booklet, price 1*s.*, has just been issued by the South Eastern and Chatham Railway Co., entitled "The Coronation Souvenir of the Continental Express and the South Eastern and Chatham Railway." It is a really very interesting account of the rise of railways, and to give some idea of the difficulties overcome, we cannot do better than quote from the number before us:—"During the same year that Stephenson had demonstrated the practical possibilities of his locomotives, the municipal authorities of Canterbury were much perturbed by the advance in prices of foodstuffs and wearing apparel. It was due to the policy of the coach and transport companies, who had combined—as many companies do at the present day—to force up prices. The little port at Fordwich, which had once been the port of Canterbury, had become silted up with sand. It was found necessary to open another port, and accordingly Whitstable was chosen. But it was the success of Stephenson that paved the way to this decision; for it was found possible to connect the town of Canterbury to Whitstable by railway. Several engineers were consulted, but none of their plans appeared practicable; eventually, however, Stephenson himself came to their aid. He planned a viaduct, and a tunnel to run under Tyler's Hill. To approach the gradient some other daring scheme had to be carried out. To overcome the difficulty Stephenson used endless ropes worked by stationary engines. When the train drew near to the gradient it was attached to a windlass and hauled up the incline.

"It was the tunnel, however, that delighted the citizens of Canterbury. For many years it was kept locked and bolted during the night less harm should befall it, for people had a disagreeable habit of removing loose bricks from the interior of the tunnel and using them for building pigsties and other out-houses; traces of the bolts and locks with which the tunnel was once provided can still be seen.

"It was on May 3, 1830, that the line was opened for traffic, amidst great local rejoicings. Special coaches were run from London to Canterbury to celebrate the event; and steamers on the Thames were chartered to convey curious folk in thousands. Church bells rang along the line of route, flags were hung out from many houses, and the millennium of travel appeared to have arrived in the South of England. Unfortunately the line proved a great financial loss to everyone concerned."

The first railway in Kent was opened between London Bridge and Croydon, followed by a line between London Bridge and Greenwich, and with the line via Maidstone to Dover we have the commencement of the important lines now known as the South Eastern and Chatham Railways, the most direct and comfortable route between London and the Continent. This booklet is full of the most interesting illustrations, well printed and on good paper.

Application is to be made to the Local Government Board for sanction to borrow £1,150, the estimated cost of the repairs to the market roof at Tunstall, Staffs.

The Penrith Rural District Council, at their recent meeting, had before them the tenders for the Western Division water scheme, and it was decided to accept Messrs. D. Thomson & Sons' tender of £18,064 10*s.* 6*d.* for No. 1 contract, and Messrs. J. Pickering & Sons', Southwaite, tender of £2,226 7*s.* 0*d.*, for No. 2 contract, making a total of £20,290 17*s.* 6*d.* No. 1 contract is for the supplying and laying of 47 miles of cast-iron mains with the necessary valves, hydrants, &c., and No. 2 contract is for the erection of two service reservoirs, screening chambers, valve chambers, &c. Mr. J. Graham, Carlisle, is the engineer.

The Edinburgh Town Council have adopted the following recommendations by the Lord Provost's Committee:—(1) That the police headquarters be removed from Parliament Square; (2) that new police headquarters be provided at the Old Corn Exchange property in the Grassmarket; (3) that buildings be erected at an approximate probable cost of from £40,000 to £45,000 on the site in the Grassmarket; (4) that a police sub-station be provided in the High Street at an estimated cost of £3,000; (5) that the preparation of the preliminary plans for the new Central Police Station be entrusted to Mr. J. A. Williamson, the City Superintendent of Works; (6) that a remit be made to the Committee to report as to the exact site in the Grassmarket for the new police headquarters, and to prepare and submit plans for the proposed new buildings, with an estimate of the probable cost; and (7) that a deputation be appointed to visit various cities to obtain information in regard to police stations.

TRADE NOTES.

MESSRS. W. J. BURROUGHES & SONS, Ltd., have removed from 143 Queen Victoria Street to Nos. 143-144 Holborn, London, E.C.

THE Aberdare County School is being supplied with Shorland's warm-air ventilating Manchester grates by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

WE are informed that the whole of the restorations and additions carried out at Lympne Castle under the direction of Sir R. S. Lorimer were executed in Chilmark stone supplied by Messrs. T. T. Gething & Co., Ltd., and worked by their staff of masons upon the site, so that the chiselling might be in character with that of the old work.

THE demand for the Champion Chimney Pot, the perfect cure for smoky chimneys, has been, and is still steadily increasing. It is made in salt-glazed fire clay in either buff colour or red terra cotta. The height is 4 feet, the base 14 by 10 inches, and the pot can be fixed on any chimney stack. One of the great advantages in this patent chimney pot is the fact that, as there is no cowl-cap or other obstruction on the apex, this pot can be swept or cleaned as an ordinary chimney pot. The appearance is artistic, the pot is unwearable, as there is nothing to corrode or get out of order, it requires no attention, and the price is reasonable. Agents have been appointed in the principal towns, so there should be no difficulty in obtaining them. Architects are asked to particularly specify "Champion," and builders and contractors should see that the word "Champion" appears on each pot.

VARIETIES.

MR. C. M. SHINER is the architect who is preparing plans for the new school to be erected at Chadwell St. Mary, Essex.

THE Bristol and West of England Exhibition of Arts and Industries is to be opened on September 18.

NEW Roman Catholic Schools and Church are to be erected at Bedminster. The design and plans have been prepared by Mr. John Bevan, 36 Corn Street, Bristol.

THE Newcastle-on-Tyne City Council are about to offer three prizes in an open competition for laying-out 200 acres of the Walker Estate upon model cottage lines.

THE tender of Mr. G. Brown, of Grays, at £1,456 has been accepted for the enlargement of the South Hornchurch Schools, Essex.

THE Chelmsford Public Library is to be extended at an estimated cost of £800. It is proposed to erect a one-storey building 40 ft. long by 20 ft. wide.

THE tender of Mr. A. H. Fryd, of Southend, at £1,695 has been accepted by the West Ham Town Council for erection of the new dormitory at the Harold Wood Convalescent Home.

THE City of New York has awarded the whole work of subway extension, at a cost of £25,000,000, to the Brooklyn Rapid Transit Company, having formally rejected the Interborough Company's counter-proposal.

AT a meeting of the Longton (Staffs) Town Hall Extension Committee, Mr. Beckett, the architect, announced his readiness to advertise for tenders. The Committee decided they should be sent in by the middle of August.

FOR the construction of the new sewer at Marden, Kent, for the Maidstone Rural Council, the tender of £271 by Messrs. Stanley & Sons, of Marden, was accepted. The highest tender was £806 2*s.* 7*d.*

SUBJECT to the sanction of the Board of Education, the pottery and mining schools to be erected for the Stoke-on-Trent Education Committee will shortly be commenced. The estimated cost is £18,000 for the buildings and £3,000 for the equipment.

A SPECIAL meeting of the Council of the Royal Institute of Architects of Ireland was held on July 26, the President, Mr. A. E. Murray, R.H.A., F.R.I.B.A., in the chair. There were also present Messrs. Lucius O'Callaghan, J. H. Webb, H. Allberry, R. Caulfeild Orpen, F. G. Hicks, G. P. Sheridan, A. G. C. Millar, and C. A. Owen (hon. secretary). Some correspondence was dealt with, including two letters from the Royal Institute of British Architects, which were referred to the Examination Committee and Professional Practice Committee. Mr. J. P. MacGrath, of Londonderry, was elected a member of the Institute. Applications for permission to sit for the studentship examination were under consideration. A resolution, proposed by the president, congratulating Sir Thomas Manly Deane on the honour recently conferred upon him by his Majesty, was passed unanimously. A report was read from the Arts Committee relative to portraits of the past presidents.

THE Mayor of Lewisham (Councillor H. A. Baxter) on Saturday afternoon laid the foundation-stone of the new bacteriological and *x*-ray departments which have been added to St. John's Hospital, Morden Hill, Lewisham, as th borough memorial to the late King Edward VII.

THE Education Committee of the London County Counci recommend that a new public elementary school for abou 800 children should be provided in the electoral division o St. George, Hanover Square, to replace the existing Horseferry Road school. The total cost involved is £41,000.

A LOCAL GOVERNMENT BOARD inquiry will be held at the Town Hall, Sheffield, next week, into the application of the City Council for sanction to borrow £20,725 for works o sewerage, and £7,472 for the erection of baths in Corporation Street. The inquiry will be conducted by Mr. W. D. E Meade-King.

THE London County Council have adopted a report of the Improvements Committee on the reconstruction of Lambeth Bridge, recommending that application should be made t Parliament next Session for authority to reconstruct the bridge as a steel arch bridge, 48 feet wide, at an estimated cost of £220,000.

AT the Quarterly Court of the Governors of the Radcliffe Infirmary and County Hospital, Oxford, an estimate of the new buildings at the Infirmary which it is proposed to erec was considered. The lowest tender of £21,137 of Messrs Wooldridge & Simpson, of Oxford, was accepted. The new buildings will include a re-modelling of the out-patients' hall a pathological laboratory, &c.

SEVEN applications had been received for the office of permanent architect and surveyor to the Dorset Territorial Association, rendered vacant by the resignation of Mr. W. T Fletcher on his appointment as County Surveyor. Afte carefully scrutinising the applications the association appointed Mr. F. T. Maltby, A.M.I.C.E., of South Street, Dorchester.

MR. WILLIAM HENRY HILL, who died at Courtmacsherry after an illness of about a week, was senior partner in th firm of Messrs. W. H. Hill & Sons, architects, who hav been prominent in the city of Cork for many years. Mr Hill held some important positions in Cork, and was th architect for a number of large buildings, including the Cor Courthouse, which was rebuilt after its destruction by fire and also several churches. He was a leading member o the Church of Ireland, and was well-known and greatl esteemed.

ON Saturday afternoon last, in the presence of a larg gathering of local residents, including Sir Henry Kimber M.P., Viscount Midleton laid the foundation-stone of th new schools in connection with St. Michael's Church, Southfields, Wandsworth. The schools, which are to accommodat 500 children, are expected to cost £6,500, including £1,500 the cost of the site, which has been given by Dr. G. B. Longstaff. Of the total sum, £3,966 had been subscribed up t Saturday, and it is hoped to raise the remaining amoun before the buildings are completed.

AT West Hartlepool Mr. H. R. Hooper, M.Inst.C.E. inspector to the Local Government Board, has just concluded the inquiry with respect to the Corporation' application for sanction to borrow £35,417 for the purpos of the municipal electricity undertaking. It is proposed b the Corporation to enter into an arrangement with the Seato Carew Iron Co. for the utilisation of the exhaust steam an waste heat at the company's works for the generation o electricity, and to erect a new power station and plant fo this purpose, the existing generating station being retaine as reserve plant. The application was opposed by the Cleveland and Durham County Electric Power Co. and others.

AT the annual dinner of the Master Builders' Association, held at Sydney, New South Wales, the President mad reference to the prevailing scarcity of labour. Accordin to the local report, he said that was the greatest difficult with which master builders were faced. The country and it industries were starving for want of population to develo them. Contracts were really going begging. Many architects could not obtain tenders for their work by reason tha builders could not obtain sufficient men to carry them ou The President of the Chamber of Commerce said that th Government should make the awards of the various wage boards known in the countries from which they were seekin to obtain new citizens. There was no country in the worl where the working man was so well off as in Australia.

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The Architect and Contract Reporter.

FRIDAY, AUGUST 11, 1911.

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The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

ANSWERS TO CORRESPONDENTS.

"Fairplay."—Detailed schedules of prices ought not to be disclosed before tenders are received and opened.—Ed.

TENDERS, ETC.

, *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Aberystwith.—Aug. 21.—The Town Council invite competitive designs for the proposed conversion of the Militia Barracks, Aberystwith, into "workmen's dwellings." Premiums of £15 and £5 are offered. An assessor is to be appointed by the Council. The premiated designs are to become the absolute property of the Town Council. The first premium will, if the architect be employed to carry out the work, merge into his commission (to be agreed upon), on the cost of any of the works the Council may decide to carry out. Designs are to be sent, carriage paid, to the Town Clerk not later than August 21. Further particulars can be inspected at the offices of the Town Clerk.

Athens.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l*. A first prize of 800*l*., and a second prize of 320*l*. will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Bristol.—The directors of the Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

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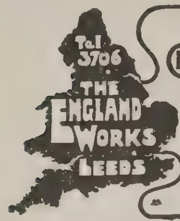

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Coseley.—Plans for Council school for 200 children for the oseley Education Committee, at Dimmock Street, Park- eld, Coseley, W. Dudley. Conditions, one guinea, return- ble on receipt of plans. Mr. Fred. J. C. Poole, Secretary, ducation Offices, Coseley, near Bilston.

London.—The Metropolitan Borough Council of St. arylebone invite designs for new municipal buildings in arylebone Road. Deposit £1 1*s*., which will be refunded n receipt of a bona-fide design or return of conditions within ne month of receipt. All particulars from Mr. James Vilson, Town Clerk, Town Hall, Marylebone Lane, Oxford treet, W.

Newcastle-upon-Tyne.—The Education Committee ivite competitive plans from architects practising in New- astle for a Senior Mixed School and a Junior Mixed chool, each to accommodate 365 children, at Walker Gate. Ir. Spurley Hey, secretary, Education Offices, Northum- erland Road, Newcastle-upon-Tyne.

Pontefract.—Sept. 9.—The Council of the Borough in- ite competitive designs from architects practising in the Vest Riding of Yorkshire for the erection of public swim- ing and other baths at a cost not to exceed £4,500. Par- culars and conditions as to the nature of the buildings, the emuneration of the successful architect, and the premiums or the designs adjudged to be first and second, can be btained of the Borough Surveyor, Municipal Offices, Ponte- ract.

Skegness.—Sept. 5.—The Executive Committee invite rchitects to submit competitive designs and estimates for ne proposed Cottage Hospital. Building to cost £900. Pre- ium for design placed first, £15 15*s*. Designs to be sent by Sept. 5 to Mr. W. W. Robinson, hon. secretary, Capital nd Counties Bank, Skegness.

CONTRACTS OPEN.

Annfield Plain.—Aug. 29.—For alterations to boun- ary fence and wall at Annfield Plain Infants' Council chool. Mr. W. Rushworth, Shire Hall, Durham, or the nnfield Plain Boys' School.

Ashford.—Aug. 14.—For execution of certain builders' ork in connection with erection of iron railings and ostwick gates at the Ashford Boys' Council School. Mr. V. J. Spicer, correspondent, 19 Bank Street, Ashford, ent.

Beckermet (Cumberland).—Aug. 12.—For the various orks required in erection of eleven cottages and branch shop t Beckermet, for the Egremont Industrial Co-operative ociety, Ltd. Messrs. W. G. Scott & Co., architects and urveyors, 2 Park Lane, Workington.

Birkby.—Aug. 18.—For erection of a villa residence t Birkby (Yorks.). Mr. J. Berry, architect and surveyor, Market Place, Huddersfield.

Blackburn.—Aug. 24.—For the reconstruction of about 0 privies and cesspools to water closets, for the Health ommittee. Deposit 10*s*. Mr. W. Stubbs, A.M.I.C.E., orough and water engineer, Municipal Offices, Blackburn.

Brixham.—Aug. 16.—For building a new heating hamber and chimney stack and work in connection with he heating installation, &c., at the Brixham Furzeham- ill Council Schools, Devon Education Committee. The rchitect's office, 1 Richmond Road, Exeter, or the School.

Capel.—Aug. 12.—For the execution of certain buil- er's work in connection with improvements to heating, &c., equired to be carried out at the Capel Council School, ent. Mr. W. H. Tompsett, correspondent, Barham ouse, Capel, Tonbridge.

Chadderton.—Aug. 12.—For the work to be done in he construction of 115 lineal yards of brick culvert, 4 feet inches diameter, at Hunt Clough, for the Chadderton rban District Council. Mr. H. Hoyle, clerk, Town Hall, hadderton.

Churwell (Yorks.).—Aug. 14.—For the bricklayers', oiners' and slaters' work required in erection of new stables or the Society in William Street. Mr. W. Schofield, ecretary, the Churwell Industrial Co-operative Society, td.

Coventry.—Aug. 21.—For erection of a mortuary and n extension of the laundry at Union Workhouse. Mr. T. . Tickner, F.R.I.B.A., High Street Chambers, Coventry.

Dartford.—Aug. 15.—For erection of a stamping sta- ion for weights and measures, in Kent Road, Dartford (con- isting of two rooms), for the Weights and Measures Committee of the Kent County Council. County Architect, 86 Week Street, Maidstone.

Dover.—Aug. 19.—For erection of infants' school at Bulwark Hill, Dover, for Town Council. Deposit £2 2*s*. Mr. W. C. Hawke, A.M.I.C.E., Maison Dieu House, Biggin Street, Dover.

Droylsden.—Aug. 17.—For erection of shops, new offices, &c., in Market Street, for the Droylsden Industrial Co-operative Society, Ltd. Send names and addresses, together with a deposit of 1*l*. 1*s*., to Mr. J. B. Thornley, architect, Market Street, Darwen.

Dublin.—Aug. 14.—For additions and alterations to the Nurses' Home, Richmond Hospital. Mr. C. H. Ashworth, F.R.I.B.A., 12 and 13 William Street, Dublin. Send 1*l*. deposit to Messrs. Patterson & Kemster, 95 Lower Leeson Street, Dublin.

Earlestown.—Aug. 19.—For erection of an isolation hospital for the Newton-in-Makerfield Urban District Council. Deposit 1*l*. 1*s*. Mr. A. Bowes, surveyor, Town Hall, Earlestown, Lancs.

Eccles.—Aug. 26.—For erection of three houses in Corporation Road. Deposit 2*l*. 2*s*. Mr. E. Parkes, town clerk, Town Hall, Eccles, Lancs. Mr. Luke Barlow, architect, Hanover Chambers, 8 King Street, Manchester.

Eccles (Lancs.)—Aug. 26.—For erection of public baths in Cromwell Road, Patricroft, for the Baths Committee. Conditions from Mr. E. Parkes, town clerk, by payment of a deposit of £2 2*s*. Brameld & Smith, architects, County Buildings, Cannon Street, Manchester.

Ellesmere Port.—Sept. 13.—The West Cheshire Water Co. invite designs and tenders for erection at Ellesmere Port of a ferro-concrete water tower. Capacity, 200,000 gallons. Mr. Isaac Carr, M.I.C.E., Farnworth, Widnes.

Halifax.—Aug. 14.—For the various works required in erection of two dwelling-houses in Station Road, Holywell Green. Messrs. C. F. L. Horsfall & Son, architects, Lord Street Chambers.

Heybridge (Essex).—Sept. 18.—For erection of a new public elementary school at Heybridge for 468 children, for e Essex Education Committee. Send by Aug. 19, deposit of £2 2*s*. to Mr. F. H. Bright, clerk, 53 High Street, Maldon. Mr. P. M. Beaumont, architect, 53 High Street, Maldon.

Honley (near Huddersfield).—Aug. 15.—For erection of two semi-detached villas, Marsh Platt, Honley. Plans of Messrs. Lunn & Kaye, architects and surveyors, Huddersfield.

Keynsham.—Aug. 15.—For certain works of repairs to the Keynsham Isolation Hospital. Mr. H. M. Bennett, surveyor, Old Bank Chambers, Corn Street, Bristol.

Leamington.—Aug. 15.—For the extension of Leamington Spa Post Office, for the Commissioners of H.M. Works and Public Buildings. Drawings of postmaster at Leamington. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W., on payment of £1 1*s*.

London.—Aug. 15.—For extension of dining-room at the General Post Office North, for the Commissioners of H.M. Works and Public Buildings. Deposit 1*l*. 1*s*. Mr. J. Rutherford, H.M. Office of Works, Carlisle Place, Westminster, S.W.

London.—Aug. 15.—For alterations to Stoke Newington Branch Post Office, for the Commissioners of H.M. Works and Public Buildings. Deposit 1*l*. 1*s*. Mr. Rutherford, H.M. Office of Works, Carlisle Place, Westminster, S.W.

London.—Aug. 24.—For erection of proposed Primitive Methodist church, lecture hall, &c., in Lynwood Road, Upper Tooting, S.W. Mr. A. H. Edwards, secretary, 11 Foxbourne Road, Upper Tooting, S.W.

Longton (Stoke-on-Trent).—Aug. 22.—For certain alterations to the Town Hall at Longton, for the Corporation of Stoke-on-Trent. Mr. E. B. Sharpley, town clerk, Town Hall, Stoke-on-Trent. Mr. J. H. Beckett, A.R.I.B.A., architect, Market Street, Longton. Deposit £2 2*s*.

Mansfield.—Aug. 22.—For erection of a post office for the Commissioners of H.M. Works and Public Buildings. Deposit 1*l*. 1*s*. The Postmaster, Mansfield, and H.M. Office of Works, &c., Storey's Gate, S.W.

Margate.—Sept. 4.—For erection of a refuse destructor, for the Corporation. Deposit £5. Mr. E. A. Borg, borough engineer, 13 Grosvenor Place, Margate.

Maryport.—Sept. 2.—For the proposed alterations and additions to Maryport Council School, also Netherton (Maryport) Infants' Council School, for the Cumberland Education Committee. Drawings and specifications at the office of the architect, Mr. J. Forster, M.S.A., 13 Earl Street, Carlisle.

Maidstone.—Aug. 16.—For alterations, painting and repairs at the Stone House. The County Architect, 86 Week Street, Maidstone.

Menheniot.—Aug. 12.—For the restoration of barn and cattle house, also for the erection of new root house at Hay Barton, Menheniot, Cornwall. Mr. J. E. Holme, Manor Office, Plympton.

New Malden.—Aug. 21.—For the following works, for the Maldens and Coombe Urban District Council, viz.:—Contract No. 1, comprising destructor building, approach-road, skylights, drainage, and general builders' work. Deposit 5*l*. 5*s*. Contract No. 2, comprising furnaces, flues, water-tube boiler and necessary foundations, chimney, and water softening plant. Deposit 6*l*. 6*s*. Contract No. 3, comprising vertical steam engine, 8 inch centrifugal pump, boiler feed pumps, shafting and pulleys, belting, and repairs to existing pump. Deposit 5*l*. 5*s*. Mr. Reginald H. Jeffes, A.M.I.C.E., engineer and surveyor, Council Offices, New Malden, Surrey.

New Wortley (Leeds).—For the various works required in additions to the Liberal Club. Send names to Mr. F. W. Rhodes, M.S.A., architect, Upper Wortley, Leeds.

Otley.—Aug. 18.—For the joiner work in erection of partitions at the Otley North Parade Council school, for the West Riding Education Committee. The Education Architect, County Hall, Wakefield, or the Divisional Clerk's Office, Otley. Send 1*l*. deposit to the West Riding Treasurer, County Hall, Wakefield.

Pensilva.—Aug. 15.—For alterations and additions to the U.M.F. Chapel. Mr. F. Seymour, Pensilva, Cornwall.

Portslade (Sussex).—Aug. 12.—For constructing a ward block and other work at the Infectious Diseases Hospital, for the Hove Town Council. Deposit 2*l*. 2s. Mr. H. H. Scott, borough surveyor, Town Hall, Hove.

Richmond.—Sept. 7.—For erection of a receiving home for children at Parkshot, Richmond, Surrey, for the Guardians. Mr. E. J. Partridge, F.S.I., M.S.A., Bank Chambers, Richmond. Send 5*l*. deposit to Mr. P. Umney, clerk, Parkshot, Richmond.

Romford.—Aug. 23.—For erection of a Council school at Romford, for the Essex Education Committee. Send names, with a cheque for 2*l*. 2*s*., to the architect, Mr. A. S. Ley, 214 Bishopsgate, London, E.C.

Rosliston.—Aug. 14.—For four small buildings, Rosliston, near Burton-on-Trent, for the Derbyshire County Council. Deposit 1*l*. 1*s*. Mr. Maurice Hunter, A.M.I.C.E., surveyor, Bridge Street, Belper.

St. Clear.—Aug. 16.—For erection of a root house, new roofs, &c., at Lower Treworrick, St. Clear, Cornwall. Mr. R. A. Courtney, Church Street, Liskeard.

Scotland.—For new works at Hawick, for Messrs. Turnbulls, Ltd., dyers and cleaners. Separate tenders are required for mason and brickworks, carpenter and joiner works, slater and plumber works, plaster work, concrete work on floors, constructional and roof steel works, and boiler seating and chimney stack. Mr. A. Inglis, architect and surveyor, 12 Bridge Street, Hawick.

Scotland.—Aug. 14.—For the mason, carpenter, slater, and plumber works of proposed new steading, and alteration of dwelling-house at Greencraig Farm, Letterfourie Estate. Mr. W. Henry, architect, 91 West Church Street, Buckie.

Scotland.—Aug. 21.—For erection and completion of a Wesleyan Church and school at Portessie, Banffshire. Deposit 1*l*. 1*s*. The Rev. J. Haslam, The Manse, Portessie, by appointment, and Mr. W. Beddoe Rees, architect, 3 Dumfries Place, Cardiff.

Scotland.—Aug. 28.—For the mason, joiner, smith, glazier, slater, plumber, plasterer, tilelayer, and painter work of proposed school, Aberhill, Methil, for the Wemyss School Board. Deposit 1*l*. 1*s*. Mr. A. W. Taylor, clerk, Buckhaven.

Scotland.—Aug. 28.—For the construction of a lighthouse tower, engine-room, and dwelling-houses on Copinsay, Orkney, for the Commissioners of Northern Lighthouses. Deposit 1*l*. 1*s*. Messrs. D. & C. Stevenson, civil engineers, 84 George Street, Edinburgh.

Seaforth.—The West Lancashire Association Territorial Force invites tenders from builders for the erection of headquarters for the 7th Battalion the King's (Liverpool Regiment) in Seaforth. Deposit £2. Application for inspection of plans must be made on August 16 or 17 to Mr. H. L. Beckwith, architect, 3 Cook Street, Liverpool.

Sheerness.—Aug. 19.—For erection of 14 houses in Sheerness. Mr. Harvey, architect, Sittingbourne.

Sheffield.—Sept. 5.—For erection of buildings in Charlotte Street and Portobello Street, for the Department of Applied Science of the University of Sheffield. Messrs. Gibbs, Flockton & Teather, architects, 15 St. James's Row, Sheffield.

Sidcup.—Aug. 28.—For erection of the Sidcup Fire Brigade Station, the site being situated about one mile outside the boundary of the County of London, for the Foots Cray Urban District Council. Deposit 2*l*. 2*s*. Mr. W. Augustus Farnham, F.S.I., surveyor, Council Offices, Sidcup, Kent.

Starbotton.—Aug. 12.—For the various works required in alterations and additions to reading room at Starbotton, near Skipton. Send in names by August 12 to Mr. B. Tennant, Starbotton, Skipton.

Wales.—Aug. 12.—For erection of a residence near The Greenhouse, Llantarnam, for Mr. W. Richards, Pensylva, Llantarnam, near Newport, Mon. Deposit 2*l*. 2*s*. Mr. A. G. Babbidge, architect and surveyor, Clarence Chambers, Pontypool.

Wales.—Aug. 14.—For erection and completion of new house at Rhos, for the Committee of Bethlehem Congregational Chapel. Apply to Gwalia House, Hall Street, Rhos.

Wales.—Aug. 14.—For erection of 86 cottages at Pontycymmer. Tenders may be submitted for the whole number, or, alternatively, for 49 cottages and 37 cottages. Deposit 2*l*. 2*s*. Ffaldau Collieries Co.'s Offices, Pontycymmer.

Wales.—Aug. 21.—For erection of a Congregational chapel and school at Treorchy. Mr. E. S. Morgan, secretary, 102 Bute Street, Treorchy, or Mr. W. B. Rees, architect, 3 Dumfries Place, Cardiff.

Winchcomb (Glos.)—Aug. 12.—For certain repairs at Winchcomb Workhouse. Mr. H. W. Stephens, clerk to Winchcomb Rural District Council, Winchcomb, Glos.

Withycombe (Devon).—Aug. 14.—For construction of four houses at Withycombe. Mr. G. Beavis, architect, 4 Johnson's Place, Exmouth.

Woodkirk.—Aug. 16.—For the whole or any portion of the work for the restoration and reseating the Woodkirk Church, near Dewsbury. Deposit 2*l*. 2*s*. Messrs. Hoare & Wheeler, architects, 11a Orchard Street, Portman Square, London, W., or the Vicar, Woodkirk Vicarage, near Dewsbury.

Yorks.—Aug. 18.—The West Riding Education Committee invite whole or separate tenders for the following works:—Brierley: Grimethorpe Council school additions (builder, joiner, slater, plumber, plasterer, and painter). South Kirkby: Moorthorpe new school (builder, joiner, tiler, plumber, plasterer, painter, ironfounder and smith). The Education Architect, County Hall, Wakefield. Send 1*l*. deposit in each case by letter to the West Riding Treasurer, County Hall, Wakefield.

The following information is from the report by the British Acting Commercial Attaché at Peking (Mr. H. H. Fox) on the trade of China in 1910, which will shortly be issued:—The sum of £1,203,004 spent by China last year on the purchase of foreign building materials, cement, timber, furniture, window glass, &c., is indicative of another far-reaching change which is coming over the habits of the Chinese people. The dilapidated rows of one-storeyed houses of lath and plaster, dark, insanitary and comfortless, which formerly did duty as Government offices, schools, barracks, &c., are rapidly disappearing before buildings in foreign style of brick and stone, fitted with such up-to-date conveniences as electric light and steam heating; while in all the large cities and trading centres merchants and shopkeepers are replacing the shanties of former days with modern constructions in which the *yanglou* or foreign upper storey, and the plate-glass window, are usually conspicuous features. The style is more often than not atrocious and the work shoddy, but in places like Shanghai and Peking, where the erection of business buildings and Government offices has been entrusted to foreign architects, the results are not unworthy of a European city. As regards such materials as stone and bricks, China is already well supplied, and she is beginning to manufacture her own cement; but good timber is, owing to the reckless disregard of elementary principles of afforestation during the past fifty years, entirely lacking, except in remote and inaccessible parts of the country. For such articles as steel joists and plates, ironmongery and tools, corrugated iron roofing, paints and distempers, window glass, electric accessories, water and heating plants, &c., China should be a good customer for many years to come.

TENDERS.

BRIDGTOWN.

For erection of an elementary school for 300 scholars, with outbuildings and boundary wall, for the Cannock Urban District Council. Messrs. Bailey & McConnal, FF.R.I.B.A., architects, Walsall.

Horton	£2,870	0	0
Smith	2,825	0	0
Davis	2,685	10	0
Reynolds	2,647	0	0
Epsley	2,647	0	0
J. & F. Wootton	2,588	17	0
Round	2,575	0	0
Wistance	2,555	0	0
Kendrick	2,525	0	0
Gough & Son	2,490	0	0
Roe	2,468	0	0
Dorse	2,444	0	0
Guest & Son	2,419	0	0
Wootton	2,397	0	0
Speake & Son	2,389	0	0

EALING.

For the construction of a swimming bath on the east side of the existing baths in Longfield Avenue.

Mead & Pearce	£5,204	0	0
Chambers & Co.	4,720	0	0
Millman	4,386	0	0
Allen & Sons	4,198	0	0
Jarman & Co.	4,165	0	0
Dorey & Co.	4,124	0	0
Myall Bros.	4,090	0	0
Dickens (*accepted*)	4,030	0	0
Stocking	3,900	0	0

EXETER.

For the following work at Council schools, for the Devon County Education Committee. Mr. P. Morris, county architect, Exeter:—Axminster, alterations to offices, &c.; Culmstock, alterations, additions, and repairs; Dawlish, new cloakroom, corridor and ventilation, &c.; Exmouth (infants), ventilation, &c.; Marwood, new cloakroom, and alterations and additions to offices, &c.; Paignton, Curledge Street, new cloakroom, corridor, work in connection with heating installation and sanitary work.

Axminster.			
Spiller	£259	0	0
Nicks Bros.	247	17	0
Enticott & Son	233	15	0
Bazley (*accepted*)	221	0	6
Culmstock.			
Pratt & Sons	£220	17	6
Labdon & Sons	141	13	0
Hart	138	0	0
Andrews (*accepted*)	133	5	6
Dawlish.			
Lamacraft & Sons	£379	10	6
Slocombe	299	16	7
Friend (*accepted*)	283	14	0
Exmouth.			
Perry	£117	10	0
Hayman	97	17	0
Cooper & Sons (*accepted*)	86	0	0
Marwood.			
Ridge	£225	0	0
Slee & Sons (*accepted*)	208	15	0
Paignton.			
Taylor	£773	10	0
Drew (*accepted*)	745	0	0

HARLOW.

For erection of six cottages at Broad Street, Harlow, Essex, for the Oddfellows' Society. Mr. C. E. Blackbourn, architect, South Tottenham.

Bell & Sons	£1,267	0	0
Rush	1,153	0	0
Robinson, jun.	1,105	0	0
Perren	1,100	0	0
Carse	1,080	0	0
Winch	1,009	0	0
Spinner	995	0	0
Sanderson	982	10	0
Pryke	918	15	0
Sharpless	912	0	0
Ince, Leytonstone (*accepted*)	890	0	0

HAROLD WOOD.

For the erection of new dormitory buildings, convalescent home, Harold Wood, Essex, for the West Ham Town Council. Mr. J. G. Morley, borough engineer.

Clemens Bros.	£2,270	18	7
Brown Bros.	2,207	0	0
Moss	2,000	0	0
Myall & Upson	1,960	0	0
Maddison	1,874	0	0
Davey & Armitage	1,857	0	0
Jerram	1,840	0	0
Carter, Ltd.	1,840	0	0
Willmott	1,787	10	0
Symes	1,777	0	0
Hammond & Son	1,706	0	0
Fryd, Southend-on-Sea (*accepted*)	1,695	0	0

LONDON.

For alterations to the chief station of the fire brigade, for the London County Council.

F. & T. Thorne	£3,090	0	0
Downs	2,654	0	0
Johnson & Co., Ltd.	2,585	0	0
Holloway	2,568	0	0
Kerridge & Shaw	2,468	0	0
J. & C. Bowyer, Ltd. (*recommended*)	2,453	0	0
Architect's estimate	2,340	0	0

For painting and cleaning work at their infirmary, Marloes Road, Kensington, for the Kensington Board of Guardians.

Finch & Co.	£995	0	0
W. H. Holmes & Sons	980	0	0
Carney & Sons	879	0	0
Newcombes Tap-S-Tre Decorations, Ltd.	723	0	0
Cooper	633	0	0
Holland & Co., Ltd.	587	0	0
Gasson, Cockerill & Co., Ltd.	572	10	0
Wright	555	0	0
Woollaston Bros.	480	0	0
Craske	435	0	0
Squire	430	0	0
Dellar Bros., Ltd. (*accepted*)	360	0	0

For erection of a secondary school for girls on the "Furzedown" site, Wandsworth, for the London County Council.

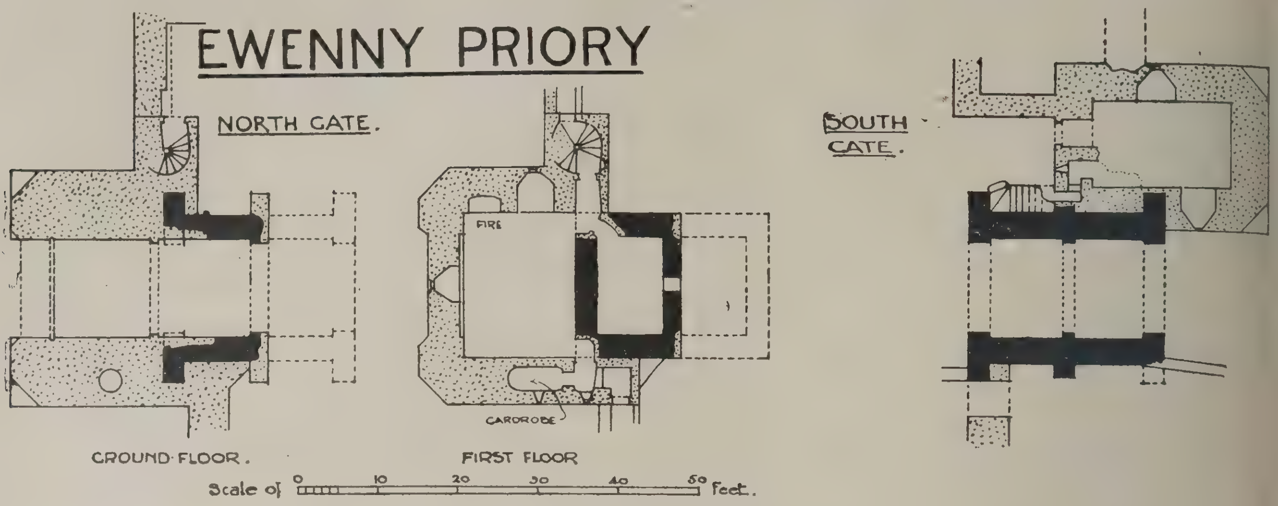
Wall, Ltd.	£25,383	12	1
Blake, Ltd.	24,712	19	1
Downs	24,300	0	0
Parker & Sons	24,249	0	0
Wallis & Sons, Ltd.	23,974	0	0
Holloway	23,540	0	0
J. Smith & Sons, Ltd.	23,289	0	0
J. & C. Bowyer, Ltd.	23,189	0	0
Johnson & Co., Ltd.	23,049	0	0
Godson & Sons	22,773	0	0
J. & M. Patrick	22,770	0	0
Lawrance & Sons, Ltd.	22,748	0	0
Holliday & Greenwood, Ltd. (*recommended*)	22,321	0	0
Architect's estimate	23,088	0	0

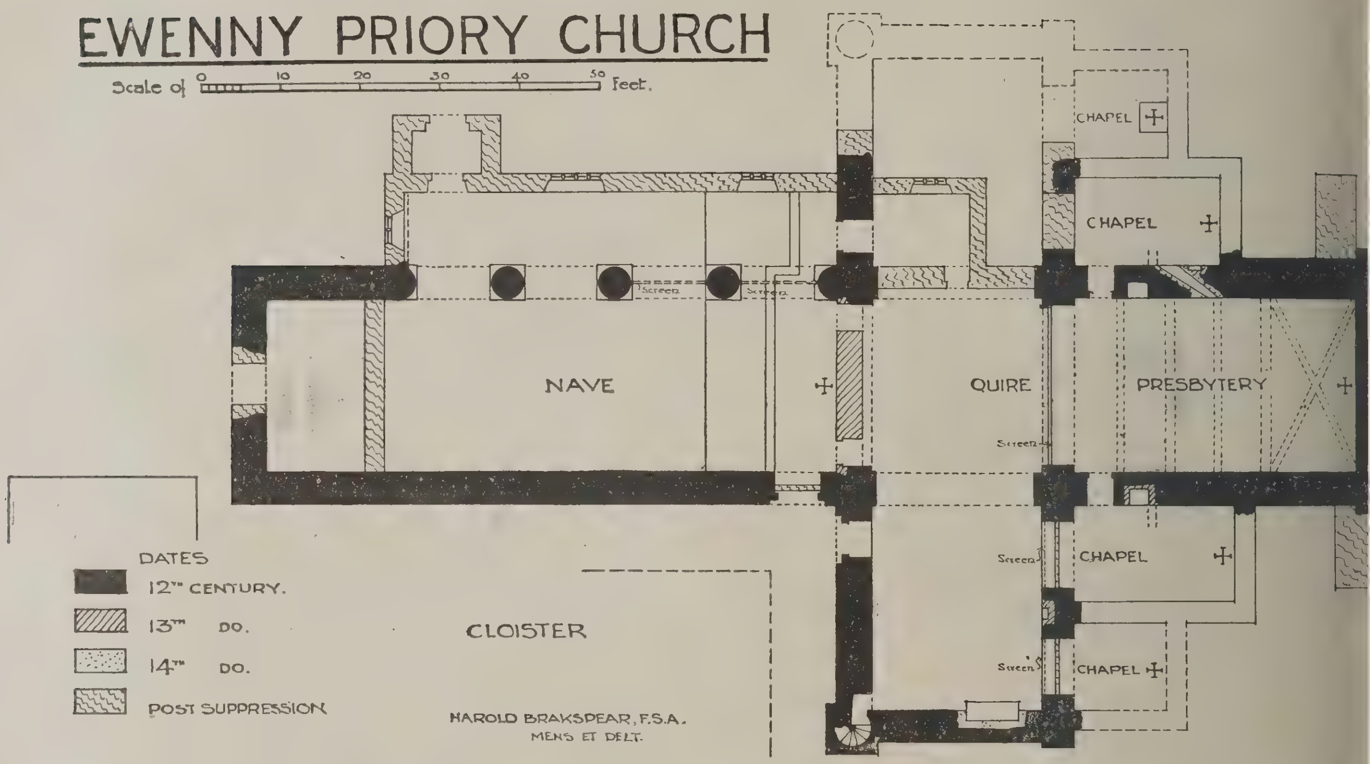
For the execution of the roadwork and platelaying, exclusive of the supply of rails and special trackwork, in connection with the adaptation and reconstruction, on the underground conduit system of electric traction, of the tramways (*i.*) in Seven Sisters Road, between Stroud Green Road and Green Lanes, and (*ii.*) in Green Lanes and Southgate Road, &c.

	Tramway Works.			Paving Works.			Total.		
Underwood & Bro.	£80,505	19	6	£5,444	13	10	£85,950	13	4
Dick Kerr & Co.	67,750	15	0	5,788	10	6	73,539	5	6
Coles	67,686	1	3	5,350	17	2	73,036	18	5
Kirk & Randall	67,015	0	0	5,616	6	0	72,631	6	0
John Mowlem & Co.	66,646	2	2*	5,347	0	8	71,993	2	10

* Recommended.

The chief engineer's estimates are £68,727 9*s.* 5*d.* for the tramway works and £5,418 5*s.* 7*d.* for the paving works, a total of £74,145 15*s.*





PLANS ILLUSTRATING EXCURSION OF ROYAL ARCHÆOLOGICAL INSTITUTE. (See p. 79.)

LONDON—*continued.*

For underpinning Highbury Industrial School, for the London County Council.

Grover & Son	£1,020	0	0
Godson & Sons	1,010	0	0
Marchant, Hirst & Co.	992	0	0
Bull	979	0	0
Price	955	0	0
Williams & Son	920	0	0
Neal	919	0	0
McCormick & Sons, Ltd.	852	0	0
Markham & Markham	717	0	0
L. H. & R. Roberts	690	0	0
Mather	620	0	0
Roberts & Co., Ltd.	600	0	0
Lawrance & Sons, Ltd. (*recommended*)	599	0	0

For painting Westville Road School, Hammersmith, for the London County Council.

Brown & Sons (Builders), Ltd.	£614	0	0
Lole & Co.	606	0	0
A. & F. Polden	577	10	0
Bendon, Ltd.	564	0	0
Peattie & Son	555	0	0
H. W. Crook & Son, Ltd. (*recommended*)	516	15	0

LONDON—*continued.*

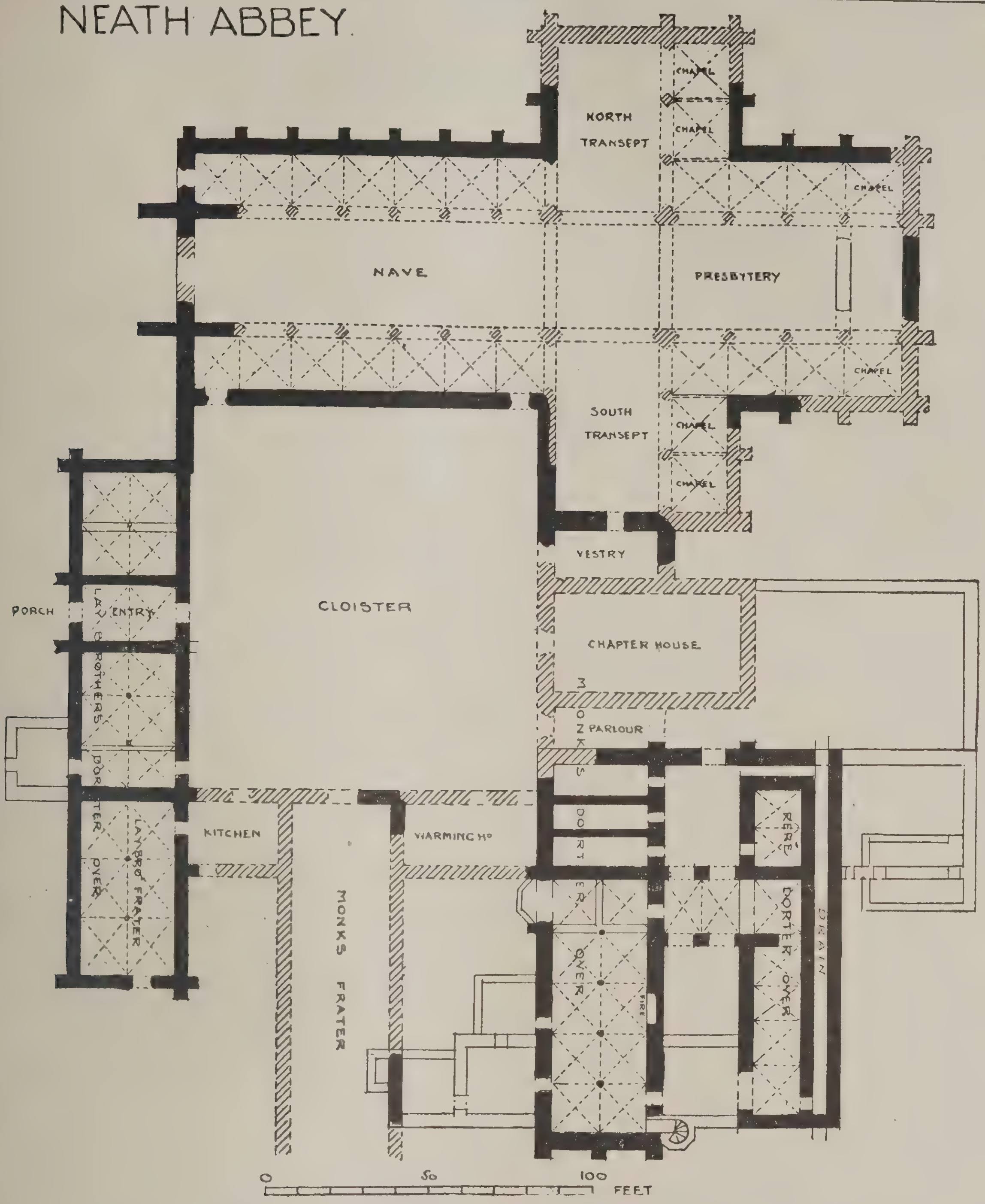
For extension of staircase, &c., at the Rosebery Avenue (Holborn) school, for the London County Council.

Roberts & Co. Ltd.	£600	0	0
Staines & Co., Ltd.	595	0	0
Tennant & Co.	585	0	0
Garrett & Son	533	0	0
Reason	499	0	0
Crook & Sons, Ltd.	492	0	0
Godson & Sons	483	0	0
Marchant, Hirst & Co.	460	0	0
Bendon, Ltd.	450	0	0
Lenn, Thornton & Co. (*recommended*)	399	0	0

LOWESTOFT.

For the erection of a parish hall and institute. Mr. A. C. W. Blyth, M.S.A., architect, Lowestoft.

Croft	£4,394	18	6
Yelf	4,250	0	0
Todd	4,220	0	0
Forder	4,200	0	0
Beckett & Son	4,198	0	0
Cole	4,127	10	0
Bedwell & Parker	4,065	0	0
Hawes & Son	3,994	0	0
Mobbs Bros., Lowestoft (*accepted*)	3,987	0	0



PLAN ILLUSTRATING EXCURSION OF ROYAL ARCHÆOLOGICAL INSTITUTE. (See p. 80.)

LEEDS.

For extensions of the Kirkstall Branch Library. Mr. W. T. Lancashire, city engineer, Leeds.

J. T. Wright, Leeds (*accepted*)	£330 0 0

MAIDSTONE.

For the construction of a new sewer at Marden for the Rural District Council. Mr. Busbridge, surveyor, Maidstone.

Brierley	£806 2 7
Sunnucks	655 0 0
Pearson	363 7 0
Burrows	296 0 0
Clark & Epps	288 0 0
Stanley & Sons, Marden (*accepted*)	271 0 0
Surveyor's estimate	300 7 2

SCOTLAND.

For the construction of a filter and the erection of a gymnasium at the Public Baths, Forfar.

Accepted tenders.

Liddle & Calder, mason work	£189 5 0
Dall, joiner work	126 0 0
Milne & Son, plumber and engineering work	96 6 0
Kerr, slater work	31 4 0
Doig, plasterer work	29 13 0

SELBY.

For the construction of eight cottages at the Depôt, Portholme Road. Mr. B. Gray, C.E., surveyor, Selby.

Reed	£1,500 0 0
T. Foster	1,455 11 0
H. Foster	1,389 15 10
Kay	1,364 16 0
Carr	1,360 0 0
Brooke & Co., Brighouse (*accepted*)	1,355 0 0

A garden suburb, containing sixty-eight villas, is to be erected at Woking, Surrey, at a cost of £20,000, by the local Co-operative Society.

The West Ham Guardians have decided to have a scheme prepared for enlarging their Whipps Cross Infirmary at a probable cost of £100,000. A preliminary report has been presented to them by Mr. F. J. Sturdy, F.R.I.B.A.

The *Diario Official* of Brazil publishes a decree opening in favour of the Ministry of Communications and Public Works, a credit of about £36,000 for the construction of a building for the Postal Telegraph Office in Nitheroy, State of Rio de Janeiro.

COMPETITION NEWS.

Barnsley.—The Sanitary Committee of the Town Council recommend that a sum of not exceeding £7,500 be expended on the new public baths. Mr. W. J. Morley, F.R.I.B.A., of Bradford, is recommended as assessor, at a fee of twenty guineas in the architectural competition.

Belfast.—It has been decided that designs for the proposed Art Gallery and Museum which is to be erected in the Botanic Gardens Park, Belfast, be obtained by public competition, and that the following members of the Library and Technical Instruction Committee be appointed to draw up the conditions: The chairman (Alderman Sir James Henderson, D.L.), the vice-chairman (Alderman Samuel T. Mercier, J.P.), Alderman W. J. Moore, C.E., Councillors W. Macartney, Dr. Trimble, W. L. Wheeler, Messrs. J. Horner, A. B. Wilson, C.E., J. G. Crawford, J. Stevenson, and Robert Patterson.

Largs.—About sixty designs for a memorial of the Battle of Largs (1263) have been received. Arrangements have been made to exhibit these in the hall of the Stevenson Institute at Largs, N.B., till the 14th inst., from 12 noon till 8 p.m. The matter of afterward showing a selection of the designs in Glasgow is being considered. The committee say they are still open to receive contributions to the fund for the erection of the memorial, and contributors will have a voice in deciding which design shall be adopted.

CORRESPONDENCE.

Deptford Central Library Competition.

Sir,—Can the award as regards the first premiated design in the above have been made regardless of the conditions attached to the competition? To me it appears undoubtedly so.

For instance, the newsroom in this plan is without supervision of any kind, while it was distinctly required by the conditions that the lending library and the attendant's lobby should both supervise this room. Again, the sub-librarian's room as now planned on this scheme is impossible for the use intended.

Many other conditions have been ignored in a manner which suggests to me that this award is unfair to those competitors who regarded the conditions as governing the competition and submitted their designs in accordance therewith.

There was a distinct clause in the conditions by which any designs not conforming to them would be excluded. Comment is needless.

I may mention that I am not a competitor, nor have I interest with any of those who have submitted designs.
—Yours truly, Nonplussed.

[Our reviewer noted the point as to supervision of newsroom, but presumed that it was due to an accidental blocking in of a window intended in the dividing wall from lending library.—Ed.]

The Spennymoor Urban District Council require an architect to advise them upon the best means of laying out the Market site in High Street, for Council Hall, Market Hall, offices and business premises, &c. Applications must be sent in by August 28.

The Most Rev. His Grace the Lord Archbishop of York has consented to accept the office of President of the 27th Congress of the Royal Sanitary Institute to be held in York in July 1912.

Helensburgh Town Council have agreed generally to the proposal for building a new esplanade extending from a point of about 150 feet down the pier eastwards along the shore to Maitland Street. The amount of foreshore reclaimed will be about three acres. The estimated cost of the scheme, the details of which are yet to be gone into, will be about £5,000.

At a meeting of the London County Council, held on August 1, a resolution as follows was passed by an absolute majority of the whole number of the Council: "That application be made in the session of Parliament of 1912 for powers to enable the Council to develop any part of the White Hart Lane estate on the lines of a garden suburb and not solely for the accommodation of the working classes, and further for authority to lease separate plots of land on the estate for the erection of better-class houses on the condition that the plans of the houses to be erected shall be subject to the approval of the Council; that the costs and expenses of promoting the proposed legislation be defrayed out of the county fund; and that such costs and expenses be regarded as incurred for special county purposes."

BUILDING BOOM IN TURKEY.

It appears from a recent report to his Government by the United States Consul-General at Beirut that building operations in Constantinople have not kept pace with the growth of population. One cause of the increased demand for houses is that the Eastern custom of permitting several generations of a family to live in the same house, often a small one, is yielding to modern requirements, and the son who marries now prefers a house of his own. Immigration from the provinces is now rendered possible by the Constitution, which permits the people to establish their domicile wherever they wish. The fires in the congested quarters seem to destroy more buildings than the people erect.

Various signs point toward an approaching "building boom" in Constantinople. There exists a strong demand for apartment houses, office buildings, and warehouses equipped with modern conveniences. Already many new buildings are planned. Five structures at Robert College, a new bank building for the Bank of Athens, a new hotel, and three or four large buildings, mostly of reinforced concrete. Articles for house construction, including structural iron, builders' hardware, galvanised tin and asbestos roofing, lifts, plumbers' supplies, lavatory fittings, should find a market.

A list of British commission agents established in Constantinople may be obtained by British firms on application to the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

A new Hippodrome at Bedminster, Bristol, was opened recently by the Lord Mayor of Bristol, accompanied by the Lady Mayoress. It has an imposing frontage in East Street, executed in a modern Renaissance of local red brick and white Carrara. The interior is designed in consonance with the exterior, and is decorated in white and gold with a sparing use of a delicate cream colour. Most elaborate provision has been made against fire, and there are numerous hydrants all over the house, also in the flies and on the stage. The dressing-rooms at the back of the stage are well appointed and easily accessible, yet they can be completely cut off by heavy armour doors from the stage. The safety curtain, douched by a sprinkler; a fusible line which automatically opens the lantern lights over the grid; and the fireproof scenery are other devices which conspire to reduce the risk of a panic in the event of an outbreak. The architect of the new hall is Mr. Bertie Crewe, of Shaftesbury Avenue, London.

The Incorporated Church Building Society held its usual monthly meeting on Thursday, the 20th ult., at the Society's House, 7 Dean's Yard, Westminster Abbey, S.W. Grants of money were made in aid of the following objects, viz.: Building new churches at Bristol, St. Ambrose, £50 for the first portion; Harrow-on-the-Hill, St. Peter, Middlesex, £150; and Skirbeck Quarter, St. Thomas, Lincs., £100; and towards enlarging or otherwise improving the accommodation in the churches at Cricklewood, St. Peter, Middlesex, £60; Dinnington, St. Leonard, Yorks., £20; Hendon, St. Paul, near Sunderland, £20; Highgate, All Saints, Middlesex, £50; Hoxton, Christ Church, Middlesex, £50; Luckington, St. Mary and St. Ethelbert, Wilts., £20; Shadingfield, St. John the Baptist, Suffolk, £20; Walton, St. Mary, Suffolk, £15; and Ipswich, St. Bartholomew, £60. Grants were also made from the Special Mission Buildings Fund towards building mission churches at Canford Cliffs, Church of the Transfiguration, near Bournemouth, £25; and Rotherhithe, Clare College Mission, Surrey, £35. The following grants were also paid for works completed: Plumstead, St. Mark, Kent, £500, being balance of a grant of £1,000; Llandrindod Wells, Old Church, £20; Kendal, St. George, £85; Stoke Damerel, St. Andrew, Devonport, £100; Cotleigh, St. Michael, Devon, £25; Swinton, Holy Rood, near Manchester, £65; Woodford Bridge, St. Barnabas, Essex, £150; Kingsway, Holy Trinity, London, £200; Caversham, St. Andrew, Oxon., £100; Gainsborough, Holy Trinity, Lincs., £20; Lydgate, St. Anne, near Manchester, £85; Chesham Bois, St. Leonard, Bucks., £70; St. Mary-in-the-Marsh, Kent, £50; Rodley Mission Church, near Leeds, £20; Picton, St. Hilary, Yorks., £20; and Stockwell, The Epiphany, Surrey, £50. In addition to this the sum of £310 was paid towards the repairs of seventeen churches from trust funds held by the Society. At this meeting the Secretary reported the receipt of an anonymous donation of £800, £600 being for the General Fund and £200 for the Mission Buildings Fund.

BUILDING PROGRESS IN THE PROVINCES.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit full particulars to Room 6, Imperial Buildings, Ludgate Circus, for insertion in this weekly list.)

ENGLAND.

Berkshire.

Caversham.—Four shops in Prospect Street. Mr. E. Ravenscroft, architect.

Cambridgeshire.

Bourn.—Parish Church tower restoration (£900). Mr. S. Inskip Ladds, A.R.I.B.A., architect.

Cheshire.

Broken Cross.—Church School alterations (£450). Messrs. Gorton & Wilson, contractors.

Macclesfield.—Conservative Club.

Hospital in Moss Lane: new disinfecting station and laundry alterations. Mr. Charles W. Stubbs, Borough Surveyor.

Infirmary renovation (£4,000).

Christ Church School renovation (£1,424). Messrs. Frith, contractors.

Cornwall.

Bodmin, Lostwithiel, and Wadebridge.—Isolation Hospital.

Cumberland.

Canonbie.—Parish Hall (400 to 500 seats).

Langwathby.—Church of England schools (alterations). Mr. J. H. Martindale, F.R.I.B.A., architect.

Wigton.—Clothing factory extensions and alterations in Station Road. Mr. Gibbings, architect.

Derbyshire.

Killamarsh.—Endowed School enlargement, High Street.

Hampshire.

Bishopstoke.—Church completion.

Hartley Wintney.—Sewage disposal scheme. Mr. T. J. Moss-Flower, C.E., F.R.San.I., engineer.

Newdigate.—Church tower restoration (£500).

Herefordshire.

Hay.—Sewage Disposal scheme.

Ross.—Free Library alterations. Mr. Arthur Ashton, P.A.S.I., architect.

Lancashire.

Ashton-under-Lyne.—Chapel and Sunday School for Hurst Brook Pr. Meth. Connexion (£2,000).

Bolton.—Sixty-four houses in Deane and Rowsley Avenues, New Hall Lane, Sapling and Wigan Roads, and Bushel Street.

Council school, Wolfenden Street.

Droylsden.—Shops, offices, &c., in Market Street for the Droylsden Industrial Co-operative Society, Ltd. Mr. John B. Thornley, architect.

Heaton Norris.—Public elementary school.

Pendlebury.—School, Cromwell Road. Mr. T. J. Bushell, architect.

Leicestershire.

Leicestershire and Rutlandshire Institution for the Epileptic and Feeble-minded (accommodation for 200; estimated cost £35,000).

Ibstock.—Wesleyan Reform Church.

Leicester.—Dispensary for Tuberculosis.

Houses. Mr. R. W. Bedingfield, A.R.I.B.A., architect.

Museum and Art Gallery alterations.

Lincolnshire.

Alford.—Cottages on Farlesthorpe Road. Mr. H. Robinson, builder.

Crosby.—Water supply. Mr. W. H. Buttrick, engineer (£4,500).

Keadby.—Public carriage bridge over river Trent (£45,000).

Lincoln.—Fifteen houses in South Park Grove.

Twenty-two houses in Monks' and Coulson Roads for the Lincoln Co-operative Society.

Shop fronts in Guildhall and High Streets.

Carnegie Free Public Library.

Metheringham.—Village Cross. Mr. W. Watkins, F.R.I.B.A., architect. Mr. F. W. Baldock, stonemason.

Sleaford.—Police Station additions and alterations (£1,200).

Walesby.—All Saints new Church (£2,000).

Middlesex.

Hanwell.—Free Library extensions. Mr. W. Pywell, A.R.I.B.A., architect.

Perivale.—Church alterations and repairs. Mr. G. S. Valentin, architect.

Willesden.—Two schools with housewifery class-rooms.

Monmouthshire.

Newport.—New bridge (60 feet wide).

Assize and other Law Courts and Police accommodation. Borough Architect.

Northamptonshire.

Badby.—School.

Daventry.—Infectious Diseases Hospital (£8,000).

Higham Ferrers.—Infants' School alterations.

Kettering.—Secondary School.

Silverstone.—Church of England schools. Mr. H. W. Burrows, architect. Mr. R. Marriott, contractor.

Northumberland.

Barrasford, Gunnerton, Oakwood, and Wall.—Water supply schemes. Mr. C. F. Murphy, A.M.I.C.E., engineer.

Weedon.—Sewage disposal scheme. Mr. J. B. Williams, surveyor (£8,000).

Somersetshire.

Wellington.—Isolation hospital. Mr. E. T. Howard, Council Surveyor.

Supplementary water supply (£2,000). Mr. E. T. Howard, Council Surveyor.

Staffordshire.

Newcastle-under-Lyme.—Arcade, billiards-room, picture-drome and shop front. Mr. H. Booth, architect.

Lloyds banking premises extension.

Surrey.

Croydon.—King Edward Memorial Hospital extension (£6,000).

Frimley.—St. Andrew's Permanent Church (accommodation, 250; estimated cost, £2,400).

Guildford.—Twenty workmen's cottages (£3,400).

Corn Market alterations for Council Officials' Offices (£1,000).

Southfields.—Church school.

Sussex.

Chichester.—West Sussex, East Hants, and Chichester General Infirmary, re-construction (£1,500 to £2,000).

Eastbourne.—Home for feeble-minded paupers.

Horeham Road.—Drainage scheme (£13,600).

Mansfield.—Working-class cottages.

Preston.—Mission Church of St. Matthias (£3,500).

Workhouse laundry enlargement (£860).

Waldron.—(See Horeham Road.)

Worthing.—Refuse destructor enlargement. Mr. Frank Roberts, A.M.I.C.E., Borough Surveyor.

Westmorland.

North Westmorland water supply scheme.

Yorkshire.

Bridlington.—Christ Church Parish Hall.

Leeds.—Parish Church at Manston (£7,500).

Tadcaster.—Eighty-six houses.

Church at New Manston.

Yedingham.—Water supply scheme. Mr. Robert Richardson, C.E., engineer.

York.—Public elementary school at Castlegate for 540 children.

York United Gas Company's additional offices.

Messrs. Rowntree's Cocoa Works new dining hall, &c., for 3,500 hands. Mr. Swain, architect.

Working-class dwellings.

WALES.

Ammanford.—Intermediate school.

Caerwys.—School extension.

Furnace, Halfway and Marble Hall.—Schools.

Pontardawe.—Water supply extensions (£5,500). Mr. Morgan, engineer.

Fifty-six houses.

Bontycymmer.—Eighty-six cottages.

Swansea.—Fifty-three houses on Trewaffa Common and fifty houses at Cwm. Education architect.

SCOTLAND.

Achnacarry.—St. Kiaran's Mission Church. Mr. P. Macgregor Chalmers, F.S.A. (Scot.), I.A., architect. Messrs. E. & D. Stewart, contractors.

Alloa.—Public fountain.

Crossford.—School.

Eaglesham.—Sewage purification works. Mr. J. G. Bennett, engineer. Messrs. Wilson, Kimmond & Mair, contractors (£2,000).

Forfar.—Lowson Memorial Church.

Legerwood.—Church hall.

Kilberry.—School extension.
Kilchoman.—Free church.
Limekiln.—School.
Monkton.—School (£1,000). Mr. W. Reid, architect.
Perth.—School Board Academy at Kinnoull (£30,000).

IRELAND.

Kingstown.—Artisans' dwellings (£7,600).
Baths and wash-houses, Kelly's Avenue (£1,000).
Caretaker's house, lavatories, &c., Lower George Street (£740).
Malahide.—Water supply scheme. Mr. P. H. M'Carthy, M.I.C.E.I., Borough Engineer.

TRADE NOTES.

A large clock has been ordered for the parish church at Widford, near Ware, which will strike the hours and show time on a large dial. It is to be fitted with all the latest improvements and generally to the designs of the late Lord Grimthorpe. The makers—Messrs. John Smith & Sons, Midland Clock Works, Derby—guarantee it to keep time with great accuracy. The same firm have also recently made clocks at Saxthorpe Church, Norfolk, and Barton Mills Church, Suffolk.

From the Carron Company we have received two well-bound and well-produced catalogues. One is devoted to kitchen ranges and the other to fire grates. For both classes of goods this company have established a reputation for artistic design and excellence of manufacture which may without the least exaggeration be described as world-wide. The variety of designs in the interior and register grates which are here illustrated is such that they must include something for every taste. Some are restrained to severity, others are decorative, not to say florid; and between the two are a large number which will satisfy the most exacting critic. There is also, of course, a considerable choice among types of fire. "Carron" ranges established themselves in favour more than a century and a half ago, and they have been improving that reputation ever since. This is being achieved by concentration on detail and attention to all the latest improvements which cunning hands and brains can devise.

The "Eau-Sho" boiler is the latest product of Messrs. Robt. Jenkins & Co., of Rotherham, and is put on the market as a hot-water boiler of comparatively small size which is compact in shape, rapid and effective in heating power, and with ample means of access. On plan it is of horse-shoe shape with a flat front. It may be placed in an angle or recess and still be accessible from the front for cleaning out. A special feature is a wedge-shaped water-pocket which projects into the heart of the fire, thereby ensuring rapidity of heating. A No. 1 size boiler (30 in. by 16 in. by 16 in.) in actual use is yielding, we are told, 60 gallons of boiling water per hour, though listed at 55 gallons only. The fire front is recessed so as to remove the risk of incrustation. Three oval mud-holes make the removal of any sediment an easy matter. The "Eau-Sho" boilers (for which a patent has been applied) are made both with and without a waterway bottom, in thirteen sizes for 210 to 720 feet 4-inch pipe. Where the water is soft (off mountain or moorland areas), it rusts an iron boiler and becomes unsuitable for domestic use. Copper boilers are used to overcome this difficulty, but the metal is costly and not durable. Messrs. Jenkins & Co. have therefore designed a wrot-welded boiler containing a copper coil connected to the service pipes, so that the water for domestic use is heated by passing through the coil, and is kept from all contact with iron. The prices compare favourably with those of copper boilers of equal powers. The dual boiler may also be used for combined heating apparatus and domestic supply. For situations where vertical space is limited, a boiler of larger diameter and proportionately reduced height is made.

J. H. Sankey & Son, Ltd., Canning Town, E., have just issued an illustrated catalogue of sanitary goods (Section S.). In a little over twenty pages they deftly give a comprehensive survey of the multitude of articles which they handle as merchants, shippers, and exporters. Pride of place is given to their London-made glazed stoneware pipes as supplied to various public authorities, and in which the 4 in., 6 in., and 9 in. sizes stood an average crushing strain of 4,000 lb. in a test by Messrs. Kirkaldy. Amongst the Sankey patents here given are channel interceptors, clearing eyes, sink traps, draught pots, and gullies. In the Sankey deep intercepting gully or grease trap the foreign matter intercepted in the specially strong perforated iron bucket is retained under water so that no dangerous gases are given off as with some other gullies where suspended buckets are used. Messrs. J. H. Sankey & Son have now been in business for more than fifty years, and in that time have got to know exactly what is required for sanitation on both a large and small scale. Their new catalogue can, of course, only deal summarily with classes of goods which are in themselves well-known and which are fully dealt with in special catalogues.

VARIETIES.

The Kirkcaldy District Committee of the Fife County Council is prepared to receive from engineers competitive designs for a drainage scheme for the special drainage district of Auchterderran, to include works for the purification of the sewage. A premium of £52 10*s.* will be awarded to the design judged to be the best of those submitted, and £26 5*s.* for that awarded the second place.

Owing to large colliery developments taking place in the neighbourhood of Askern, a considerable extension of the property in the town is imminent, and the Doncaster Rural District Council have instructed Messrs. D. Balfour & Son, of London and Newcastle-on-Tyne, to prepare plans for the extension of the sewers and also the sewage disposal works.

In order to arrest the decay in the stonework of Dunfermline Abbey Church, part of the building is being treated with silicate of soda. So pronounced was the erosion that the heritors obtained the advice of Sir Rowand Anderson, who estimated that it would take nearly £1,000 to overcome the ravages of the decay. The present treatment is purely experimental, and before any further work of the kind is undertaken, Sir Rowand Anderson will be asked to pay a visit of inspection.

Gillingham parish church has been further beautified by a stained glass window, erected by his sisters in memory of the late Mr. James George Allen. One of the lights represents the Saviour standing at the mouth of the sepulchre with Lazarus, and the other Mary and Martha, the latter kneeling against the stone in front of the grave. The window was designed and executed by Mr. Reginald Hallward.

Lord Provost Brown, at the Edinburgh Town Council meeting, proposed approval of a recommendation that sanction be given to the erection of a Town Hall in Portobello. This, he said, was the last claim Portobello had under the bond entered into in 1896 under the scheme of amalgamation with Edinburgh. An admirable site—that of Inverey House—had been secured. After considerable discussion the motion was agreed to by a majority.

A new Liberal Club for Ayr and South Ayrshire, situated in Sandgate, Ayr, has been opened for the use of members. The building was erected from designs by Mr. J. R. Johnstone, architect, Troon. The ground floor consists of shops; the reading-room, hall, and other accommodation are on the first floor, and the billiard-room and other accommodation on the second floor, and all the rooms are large and airy. The premises cost about £5,000. They will be formally opened in the autumn.

The Libraries Committee of the Manchester Corporation have accepted a tender for the erection of the temporary library on a part of the old Royal Infirmary site at Piccadilly, to provide accommodation for the work of the Central Free Reference Library after the closing of the present building in King Street, and until the completion of the new Library and Art Gallery on the Piccadilly site. The cost of the temporary building cannot be stated at present, but it is understood that the promise of Mr. Alderman Plummer to the City Council some time ago that it should not exceed £4,000 has been adhered to.

Mr. C. Hamilton Wickes, H.M. Trade Commissioner in Australia, who has recently revisited this country under instructions, is now on his way back to Australia. Any inquiries, says the *Board of Trade Journal*, which British firms may desire to address to him should be sent to his office at Equitable Building, Melbourne. As announced at the time of his arrival, Mr. Wickes returned to the United Kingdom with a view to visiting the principal industrial centres and affording to British manufacturers and merchants an opportunity of consulting him with regard to trade conditions in the Commonwealth. It may be of interest to note that during his stay Mr. Wickes visited twenty-four Chambers of Commerce, and interviewed over 400 firms.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

⁂ *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2* p.m. *on Thursdays.*

COMPETITIONS OPEN.

Aberystwith.—Aug. 21.—The Town Council invite competitive designs for the proposed conversion of the Militia Barracks, Aberystwith, into "workmen's dwellings." Premiums of £15 and £5 are offered. An assessor is to be appointed by the Council. The premiated designs are to become the absolute property of the Town Council. The first premium will, if the architect be employed to carry out the work, merge into his commission (to be agreed upon), on the cost of any of the works the Council may decide to carry out. Designs are to be sent, carriage paid, to the Town Clerk not later than August 21. Further particulars can be inspected at the offices of the Town Clerk.

Athens.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l.* A first prize of 800*l.*, and a second prize of 320*l.* will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

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Barnsley.—Oct. 7.—The Town Council invite competitive drawings for a proposed extension of public baths, including a swimming bath, Russian and vapour baths, and slipper baths, in connection with the existing public baths in York Street and Race Street, Barnsley. The Town Council offer premiums of £50, £30 and £20. Mr. J. H. Taylor, M.I.C.E., borough surveyor, Manor House, Barnsley.

Bristol.—The directors of the Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

Coseley.—Plans for Council school for 200 children for the Coseley Education Committee, at Dimmock Street, Parkfield, Coseley, W. Dudley. Conditions, one guinea, returnable on receipt of plans. Mr. Fred. J. C. Poole, Secretary, Education Offices, Coseley, near Bilston.

Hastings.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Conditions and instructions may be obtained (on payment of £1 1s. deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

London.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1s., which will be refunded on receipt of a bona-fide design or return of conditions within one month of receipt. All particulars from Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

Newcastle-upon-Tyne.—The Education Committee invite competitive plans from architects practising in Newcastle for a Senior Mixed School and a Junior Mixed School, each to accommodate 365 children, at Walker Gate. Mr. Spurley Hey, secretary, Education Offices, Northumberland Road, Newcastle-upon-Tyne.

Pontefract.—Sept. 9.—The Council of the Borough invite competitive designs from architects practising in the West Riding of Yorkshire for the erection of public swimming and other baths at a cost not to exceed £4,500. Particulars and conditions as to the nature of the buildings, the remuneration of the successful architect, and the premiums for the designs adjudged to be first and second, can be obtained of the Borough Surveyor, Municipal Offices, Pontefract.

Skegness.—Sept. 5.—The Executive Committee invite architects to submit competitive designs and estimates for the proposed Cottage Hospital. Building to cost £900. Premium for design placed first, £15 15s. Designs to be sent in by Sept. 5 to Mr. W. W. Robinson, hon. secretary, Capital and Counties Bank, Skegness.

Wales.—Sept. 6.—The Committee of Visitors of the Joint Counties Lunatic Asylum, Carmarthen, are contemplating various repairs and alterations to the existing asylum, together with the erection of additional buildings, and architects are invited to submit full particulars of their terms and previous experience of asylum work, together with copies of testimonials, to Mr. W. J. Wallis-Jones, clerk to the Visitors, 34 Quay Street, Carmarthen.

CONTRACTS OPEN.

Annfield Plain.—Aug. 29.—For alterations to boundary fence and wall at Annfield Plain Infants' Council School. Mr. W. Rushworth, Shire Hall, Durham, or the Annfield Plain Boys' School.

Bamford.—Aug. 26.—For erection of a foreman's lodge at the filter beds at Bamford, Sheffield, for the Derwent Valley Water Board. Deposit £1 1s. Messrs. W. B. Starr & Hall, architects, 12 Victoria Street, Nottingham.

Barnet.—Aug. 23.—For the erection of clerk's offices at Wellhouse Lane, for the Guardians. Messrs. White, Son & Pill, 13 and 15 High Street, Barnet.

Barnsley.—Aug. 19.—Whole tenders are invited for the various works (excepting shop fronts) required in erection of four shops, Eldon Street, for Messrs. Armitage Bros. Forward names by Aug. 19 to Mr. E. W. Dyson, architect, 10 Regent Street, Barnsley.

Birmingham.—Aug. 25.—For the extension of and alterations to the Birmingham Parcel Office, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1s. Mr. J. Tosh, H.M. Office of Works, Pinfold Street, Birmingham.

Bishop Auckland.—Aug. 19.—For erection of a workmen's club and institute and caretaker's house at Middlestone Moor. Send names by Aug. 19 to Messrs. C. Johnston & Son, architects, Cockton Hill, Bishop Auckland.

Blackburn.—Aug. 24.—For the reconstruction of about 30 privies and cesspools to water closets, for the Health Committee. Deposit 10s. Mr. W. Stubbs, A.M.I.C.E., borough and water engineer, Municipal Offices, Blackburn.

Bradford.—Aug. 23.—For work required to be done in erection of a Corporation milk depôt at Morley Street. The City Architect, Bradford.

Bradford.—Aug. 23.—For the following works, for the Corporation, viz.:—(1) New roof, &c., to propagating house in Horton Park; (2) painting in various parks, recreation grounds, and cemeteries. The City Architect, Bradford.

Brighton.—Aug. 26.—For erection of a grammar school at the junction of Old Shoreham and Dyke Roads (Mr. S. B. Russell, F.R.I.B.A., 11 Gray's Inn Square, London, W.C.). Send names and £2 2s. deposit by Aug. 26 to Mr. A. F. Graves, clerk to the Governors, 117 North Street, Brighton.

Coventry.—Aug. 21.—For erection of a mortuary and an extension of the laundry at Union Workhouse. Mr. T. F. Tickner, F.R.I.B.A., High Street Chambers, Coventry.

Delph.—Aug. 22.—For the various works required in erection of a villa residence at Delph, near Oldham. Send names by Aug. 22 to Messrs. J. B. Abbey & Son, architects and surveyors, 34a New Street, Huddersfield.

Devizes.—Sept. 4.—For works in erection of two new wards and alterations and additions to the existing buildings at the Devizes Cottage Hospital. Mr. A. J. Randell, M.S.A., 4 St. John Street, Devizes.

Eastling.—Aug. 21.—For the execution of repairs and painting at the Eastling Council School. Mr. Thos. Read, correspondent, Frith, Otterden, Faversham.

Eccles.—Aug. 26.—For erection of three houses in Corporation Road. Deposit 2l. 2s. Mr. E. Parkes, town clerk, Town Hall, Eccles, Lancs. Mr. Luke Barlow, architect, Hanover Chambers, 8 King Street, Manchester.

Eccles (Lancs.)—Aug. 26.—For erection of public baths in Cromwell Road, Patricroft, for the Baths Committee. Conditions from Mr. E. Parkes, town clerk, by payment of a deposit of £2 2s. Brameld & Smith, architects, County Buildings, Cannon Street, Manchester.

Egremont.—Aug. 24.—For the whole of the works required in erection of a cottage and out-offices at Egremont, for the Cumberland County Council. Mr. D. A. Gibson, County Land Agent, 28 Castle Street, Carlisle, or at the Town Hall, Egremont.

Ellesmere Port.—Sept. 13.—The West Cheshire Water Co. invite designs and tenders for erection at Ellesmere Port of a ferro-concrete water tower. Capacity, 200,000 gallons. Mr. Isaac Carr, M.I.C.E., Farnworth, Widnes.

Farnborough (Hants).—Aug. 28.—For the following work, for the Farnborough Urban District Council:—(a) Erection of fire station behind the Town Hall; (b) private street improvements in Oxford, Yetminster, and Windsor roads. Deposit £2. Mr. J. E. Hargreaves, surveyor, Town Hall, Farnborough.

Glasgow.—Sept. 4.—For the works to be executed in the extension of the company's head offices, for the Caledonian Railway Co. Deposit £2 2s. The Engineer, Buchanan Street Station, Glasgow.

Heybridge (Essex).—Sept. 18.—For erection of a new public elementary school at Heybridge for 468 children, for the Essex Education Committee. Send by Aug. 19, deposit of £2 2s. to Mr. F. H. Bright, clerk, 53 High Street, Maldon. Mr. P. M. Beaumont, architect, 53 High Street, Maldon.

Hockley (Birmingham).—Sept. 5.—For erection of a stable at the Great Western Railway Station. The Engineer, Wolverhampton Station.

Ireland.—Aug. 28.—For the taking down and re-erection of a corrugated roof carried on a steel framework, the supply and erection of an addition thereto, the building of a brick subsidiary store, and also the building of an office and lavatory accommodation to the running shed, at their Dundalk Station, for the Great Northern Railway Co. (Ireland). Deposit £2 2s. Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

Ireland.—Aug. 28.—For erection of premises at Mullingar, for the Directors of the Ulster Bank, Ltd. Deposit £2 2s. Messrs. Blackwood & Jury, Ms.R.I.A.I., architects, 41 Donegall Place, Belfast.

Keighley.—Aug. 21.—For the mason's work only required in the construction of bathrooms, &c., at the workhouse. Messrs. Moore & Crabtree, architects, York Chambers, Keighley.

Keighley. Aug. 29.—For alterations to the sanitary conveniences at Holycroft Council school. The Borough Engineer, Keighley.

Lichfield.—Sept. 6.—The Secretary of State for War invites tenders for the following work:—The erection of No. 8 barrack blocks, including drainage, water mains, &c., at the Whittington Heath Barracks, Lichfield, in the Northern Command. Send names and 10*s.* deposit by Aug. 21 to the Director of Barrack Construction, 80 Pall Mall, London, S.W.

London.—Aug. 24.—For erection of proposed Primitive Methodist church, lecture hall, &c., in Lynwood Road, Upper Tooting, S.W. Mr. A. H. Edwards, secretary, 11 Foxbourne Road, Upper Tooting, S.W.

London.—Aug. 30.—For the erection of a house for the Steward at the Western Fever Hospital, Seagrave Road, Fulham, S.W., for the Metropolitan Asylums Board. Deposit £1. Mr. W. T. Hatch, M.I.C.E., M.I.M.E., engineer-in-chief, the office of the Board, Embankment, E.C.

London.—Sept. 2.—For altering and lengthening two double hot-water pits at St. Pancras Cemetery, East Finchley, for the St. Pancras Borough Council. Mr. C. H. F. Barrett, Town Clerk, Town Hall, Pancras Road, N.W., or the Superintendent at the Cemetery, East Finchley.

Longton (Stoke-on-Trent).—Aug. 22.—For certain alterations to the Town Hall at Longton, for the Corporation of Stoke-on-Trent. Mr. E. B. Sharpley, town clerk, Town Hall, Stoke-on-Trent. Mr. J. H. Beckett, A.R.I.B.A., architect, Market Street, Longton. Deposit £2 2*s.*

Mansfield.—Aug. 22.—For erection of a post office for the Commissioners of H.M. Works and Public Buildings. Deposit 1*l.* 1*s.* The Postmaster, Mansfield, and H.M. Office of Works, &c., Storey's Gate, S.W.

Margate.—Sept. 4.—For erection of a refuse destructor, for the Corporation. Deposit £5. Mr. E. A. Borg, borough engineer, 13 Grosvenor Place, Margate.

Maryport.—Sept. 2.—For the proposed alterations and additions to Maryport Council School, also Netherton (Maryport) Infants' Council School, for the Cumberland Education Committee. Drawings and specifications at the office of the architect, Mr. J. Forster, M.S.A., 13 Earl Street, Carlisle.

Minehead.—Sept. 5.—For the erection of a stable at the Great Western Railway Station. The Engineer, Taunton Station.

Nantwich.—Sept. 16.—For erection of three single dwelling-houses and three sets of farm buildings, on the Sound Estate, near Nantwich, Cheshire. The County Estate Office, 49 Northgate Street, Chester, and at the Estate Office, 137 Nantwich Road, Crewe.

New Malden.—Aug. 21.—For the following works, for the Maldens and Coombe Urban District Council, viz.:—Contract No. 1, comprising destructor building, approach-road, skylights, drainage, and general builders' work. Deposit 5*l.* 5*s.* Contract No. 2, comprising furnaces, flues, water-tube boiler and necessary foundations, chimney, and water softening plant. Deposit 6*l.* 6*s.* Contract No. 3, comprising vertical steam engine, 8 inch centrifugal pump, boiler feed pumps, shafting and pulleys, belting, and repairs to existing pump. Deposit 5*l.* 5*s.* Mr. Reginald H. Jeffes, A.M.I.C.E., engineer and surveyor, Council Offices, New Malden, Surrey.

Oldham.—Aug. 23.—For execution of the whole of the trades in the erection of accommodation for sane epileptics, for the Guardians. Mr. T. W. Jenkins, 25 Queen Street, Oldham.

Parton.—Aug. 19.—For alterations to the school of the Trustees of Joseph Williamson, Parton, Whitehaven. Send names by Aug. 19 to Mr. J. S. Stout, architect, 36 Lowther Street, Whitehaven.

Richmond.—Sept. 7.—For erection of a receiving home for children at Parkshot, Richmond, Surrey, for the Guardians. Mr. E. J. Partridge, F.S.I., M.S.A., Bank Chambers, Richmond. Send 5*l.* deposit to Mr. P. Umney, clerk, Parkshot, Richmond.

Romford.—Aug. 23.—For erection of a Council school at Romford, for the Essex Education Committee. Send names, with a cheque for 2*l.* 2*s.*, to the architect, Mr. A. S. Ley, 214 Bishopsgate, London, E.C.

Sandbach.—Sept. 16.—For erection of one single dwelling-house and one set of farm buildings, on the Moston Estate, near Sandbach, Cheshire. Deposit £1. The County Estate Office, 49 Northgate Street, Chester, and at the Estate Office, 137 Nantwich Road, Crewe.

Scotland.—Aug. 21.—For erection and completion of a Wesleyan Church and school at Portessie, Banffshire. Deposit 1*l.* 1*s.* The Rev. J. Haslam, The Manse, Portessie, by appointment, and Mr. W. Beddoe Rees, architect, 3 Dumfries Place, Cardiff.

Scotland.—Aug. 28.—For the mason, joiner, smith, glazier, slater, plumber, plasterer, tilelayer, and painter work of proposed school, Aberhill, Methil, for the Wemyss School Board. Deposit 1*l.* 1*s.* Mr. A. W. Taylor, clerk, Buckhaven.

Scotland.—Aug. 28.—For the construction of a lighthouse tower, engine-room, and dwelling-houses on Copinsay, Orkney, for the Commissioners of Northern Lighthouses. Deposit 1*l.* 1*s.* Messrs. D. & C. Stevenson, civil engineers, 84 George Street, Edinburgh.

Seaforth.—Aug. 28.—For the following works, for the Waterloo-with-Seaforth Urban District Council, viz.:—(a) Erection of stables, workshops, sheds, &c.; (b) sewering, paving, and concreting, at the Council's Store Yard, Cambridge Road. Deposit 10*s.* 6*d.* Mr. F. S. Yates, A.M.I.C.E., surveyor, Town Hall, Waterloo.

Sevenoaks.—Aug. 30.—For constructing a rain-water tank and plumbing work in connection therewith at the Isolation Hospital, Otford, near Sevenoaks. Mr. Ernest Pawley, architect, 86 High Street, Sevenoaks.

Sheffield.—Sept. 5.—For erection of buildings in Charlotte Street and Portobello Street, for the Department of Applied Science of the University of Sheffield. Messrs. Gibbs, Flockton & Teather, architects, 15 St. James's Row, Sheffield.

Shoreham (Kent).—Aug. 21.—For execution of painting and repairs at the Shoreham Infants' Council School. Mr. R. F. Robertson, correspondent, Shoreham, Kent.

Sidcup.—Aug. 28.—For erection of the Sidcup Fire Brigade Station, the site being situated about one mile outside the boundary of the County of London, for the Foots Cray Urban District Council. Deposit 2*l.* 2*s.* Mr. W. Augustus Farnham, F.S.I., surveyor, Council Offices, Sidcup, Kent.

Stratton St. Margaret (Wilts).—Aug. 28.—For the construction of shelters at the workhouse infirmary, for the Guardians of Swindon and Highworth Union. Mr. J. P. Kirby, clerk, 100 Victoria Road, Swindon.

Tewkesbury.—Sept. 9.—For alterations to property in Chance Street. Mr. W. Ridler, Borough Surveyor, Station Street.

Torquay.—Aug. 19.—For erection of a new wing, structural alterations, &c., at the Grand Hotel. Apply by Aug. 19 to Messrs. Waymouth, Johnson & Webber, architects, Tormoham Manor Office, Torquay.

Uttoxeter (Staffs).—Aug. 25.—For clearing the present site and remodelling same with iron cattle stands, sheep and pig pens, iron sheds, drainage, water mains, repaving site, &c., for the Uttoxeter Urban District Council. Mr. J. R. Hadfield, surveyor, Town Hall, Uttoxeter.

Wales.—Aug. 21.—For erection of a Congregational chapel and school at Treorchy. Mr. E. S. Morgan, secretary, 102 Bute Street, Treorchy, or Mr. W. B. Rees, architect, 3 Dumfries Place, Cardiff.

Wales.—Aug. 21.—For erection of seven dwelling houses at Fochriw. Mr. J. Payne, 7 Railway Terrace, Fochriw.

Wales.—Aug. 28.—For erection of caretaker's house at Duffryn Schools, Tallistown, Cwm, Mon., for the Ebbw Vale Education Committee. Mr. H. Waters, M.S.A., Market Chambers, Ebbw Vale.

Wales.—Aug. 28.—For certain repairs and the painting throughout of the Fernhill Workmen's Institute. Mr. J. Rees, architect, Pentre.

Wales.—Sept. 2.—For repairs and renovations at 13 Northcote Street, Cardiff, for the Guardians. Apply by Aug. 24 to Mr. A. J. Harris, clerk, Union Offices, Queen's Chambers, Cardiff.

Wales.—Sept. 5.—For alterations and additions to the Great Western Passenger Station, Abertillery, Mon. The Engineer, Newport Station, Mon.

Warmley.—Sept. 6.—For the re-building of Cowhorn Hill Bridge, near Warmley, and the construction of improved approaches thereto, for the Gloucestershire County Council. Deposit £2 2*s.* Mr. E. S. Sinnott, M.I.C.E., County Surveyor, Shire Hall, Gloucester.

Warwick.—Aug. 30.—For erection of a pair of children's homes and appurtenant buildings to accommodate 30 children and staff at Warwick, for the Guardians. Deposit £2 2*s.* Mr. F. G. Cundall, M.S.A., architect, 4 Parade, Leamington Spa.

Watford.—Sept. 5.—For erection of a bandstand in Cassiobury Park. Mr. D. Waterhouse, engineer and surveyor, Council Offices, High Street, Watford.

Willington.—Aug. 24.—For building 19 cottages. The Willington Co-operative and Industrial Society, Ltd., Willington, Durham.

Worksop.—Aug. 28.—For erection of children's wards, also extension of adult males' ward and new kitchens, &c., at the Victoria Hospital. Deposit £2 2s. Mr. A. H. Richardson, architect, Market Place, Worksop.

Mr. George Boxall, builder and contractor, of Pangbourne, who died on April 10, left estate of the gross value of £24,157.

A special meeting of Gateshead Town Council was held on Wednesday, when they adopted the report of the Asylum Visiting Committee recommending the acceptance of the tender of Messrs. Wm. Moss & Sons, Ltd., of Loughborough. for the erection and completion of the superstructure of the asylum at Stannington for the sum of £76,600. The architects are Messrs. G. T. Hine & H. Carter Pegg.

Mancetter Church, near Nuneaton, which contains memorials of the Warwickshire martyrs, including Robert Glover and Mrs. Lewis, is undergoing restoration, and some interesting discoveries have been made. A second pre-Reformation piscina has been brought to light in the south aisle, and has been refaced. A curious feature about the fabric is the number of large cavities, each 12 in. square, which were found in nearly every direction. These penetrated walls 3 ft. 6 in. thick, and are thought to be the Middle Age mode of ventilation. Various chained books, including an old edition of Foxe's "Martyrs," have been placed in a handy position for inspection by visitors. The Early English font, which for many years lay in the vicarage garden, has been restored to its proper place, and a handsome oak canopy fixed, the cost of which was defrayed by the contributions of the school-children.

In an action brought in the Chancery Division of the High Court of Justice by the Osram Lamp Works, Ltd., against the British Tungsten Lamp Co., Ltd., and another, for infringement of letters patent, an order was by consent made on July 26, 1911, whereby it was (among other things) ordered that the defendants, their servants, agents, and workmen be restrained during the continuance of certain letters patent from importing into, and from making, selling, offering for sale, supplying and using in this realm any illuminating bodies or electric lamps containing illuminating bodies made according to, or in manner described and claimed in the specification of such letters patent, or according to or in manner only colourably differing therefrom, and generally from infringing the rights of the plaintiffs under the said letters patent; and that the defendants do pay to the plaintiffs the sum agreed for damages sustained by the plaintiffs, or to be sustained by reason of the infringement of the said letters patent by the defendants, by the manufacture and sale prior to the date thereof of lamps and filaments, and the sale of the lamps then in stock, or by reason of the user of such lamps and filaments; and that the defendants do pay to the plaintiffs their costs of the said action to be taxed by the taxing master.

The new Council Offices at Newburn are now open. The building, which is of Georgian character, was built from the design of Mr. Edward Cratney, which was placed first out of fourteen in competition. It is faced with red sand stocks, and roofed with green slates from Tilberthwaite. The main entrance forms the principal feature of the frontage to Newburn Lane. The hall, staircase hall, council chamber, and committee room have decorated plaster ceilings to the designs of the architect, and carried out by Mr. John Ferguson, of Newcastle. The architect has taken advantage of the rapid fall in the site by placing the caretaker's rooms and stores on the lower ground floor. The upper ground floor provides accommodation for the surveyor's, rates, and health offices. The upper floor, which is approached by a wide staircase from the hall, is entirely devoted to the council chamber and committee room. The general contractor is Mr. Thos. Clements, of Newcastle. The heating, wrought-iron work, and electric light fittings were carried out by Messrs. Emley & Sons, Ltd., Newcastle. The carving was executed by Mr. G. Hughes, Newcastle. The oak panelling, council chamber seating, and furnishings by Messrs. Robson & Sons, Ltd., Newcastle, all to the designs of the architect. The electric installation is by Messrs. Robson & Coleman, Newcastle.

TENDERS.

CREWE.

For the construction of sewerage and sewage disposal works, for the Town Council. Mr. G. Eaton-Shore, borough surveyor.

Byrom, Ltd.	£31,999	0	0
Wellerman Bros.	30,817	0	0
Hodkinson	28,929	9	8
Riley	27,054	10	6
Buckley	26,931	7	3
Morley & Sons	26,638	1	9
Davenport & Sons	25,854	3	6
Holloway	25,795	0	0
Price & Co.	25,478	19	7
Freeman & Sons	25,161	12	1
Grant	25,150	0	0
Trentham	25,076	3	1
Cunliffe & Sons	24,913	12	0
Bushby & Sons	24,756	4	7
Wilson & Sons	24,629	0	0
Thompson & Co.	24,218	14	9
Bennie & Thompson	24,006	2	1
Hayes & Sons, Heaton Norris (*accepted*)	23,364	0	0

HORSHAM.

For the supply of pipes, &c., for enlargement of main outfall sewer.

Thames Bank Iron Co.	£348	2	6
Stanton Ironworks Co.	332	10	6
Staveley Coal and Iron Co.	309	3	10
Claycross Co. (*accepted*)	288	1	5

JERSEY.

For construction of a parish hall. Mr. C. G. Bowles, M.S.A., architect, Jersey.

Malzard	£2,498	0	0
Le Moltee	2,399	0	0
Le Quesne (*accepted*)	2,235	0	0

LONDON.

For the execution of the wiring and the supply of the necessary fittings for an electric lighting installation at the North Kensington Fire Station.

Tredegar & Co.	£221	3	4
Newbald & Co.	194	0	0
Malcolm & Allan	168	10	0
Weston & Sons	160	0	0
Lawrance & Sons, 15 and 16 Wharf Road, London, N. (*recommended*)	157	0	0
Chief Engineer's estimate	160	0	0

For the construction of conveniences for men and women at Wandsworth Common.

	Granite Concrete Paving and Stock Bricks.			Granite Concrete Paving and Glazed Bricks.			Terrazzo Paving and Glazed Bricks.		
J. & C. Bowyer	£468	10	0	£516	0	0	£531	0	0
Barker & Co.	470	0	0	518	0	0	528	0	0
Carmichael	458	0	0	508	0	0	520	0	0
Bickerton	464	10	0	498	10	0	508	10	0
Johnson & Co.	431	0	0	486*	0	0	498	0	0

* Recommended.

The architect's estimate for the erection of the conveniences with granite concrete paving and stock bricks is £471.

For drainage work at the Brownhill Road School, Lewisham, to prevent the percolation of water into the boiler-room, for the L.C.C.

Pasterfield & English	£899	0	0
Young	884	0	0
Lowe & Co.	812	0	0
Thomas & Edge	796	0	0
Leng	796	0	0
Johnson & Co.	678	0	0
Akers & Co., South Norwood (*recommended*)	647	0	0

For improving the heating and ventilation of the old building at the L.C.C. Shoreditch Technical Institute (Hoxton).

G. & E. Bradley	£697	0	0
Deane & Beal	662	8	0
W. G. Cannon & Sons, 107 London Road (*recommended*)	650	0	0

LONDON—*continued*.

For the execution of the roadwork and platelaying, exclusive of the supply of rails and special trackwork, in the construction, on the overhead trolley system, of electric tramways from Brixton Road to Herne Hill *via* Effra Road and Dulwich Road.

	Tramway Works.			Paving Works.		
William Underwood & Bro.	£20,681	0	0	£9,962	7	5
Mowlem & Co.	19,846	15	8	9,002	5	11
Dick, Kerr & Co.	18,950	4	6	8,653	16	2
Coles	19,010	7	10	9,681	0	3
Wimpey & Co.	18,407	6	10	9,250	2	2
Kirk & Randall, Woolwich	18,104	9	0*	9,004	11	10

* Recommended.

The chief engineer's estimates are £19,616 for the tramway works and £9,500 7*s.* 1*d.* for the paving works.

NEATH.

For the following and incidental works at the Recreation Ground, viz.:—385 yards, or thereabouts, of dwarf wall and unclimbable iron railing; 700 yards, or thereabouts, of subsoil drains; 2,000 yards, or thereabouts, of 12-inch, 9-inch, and 6-inch pipe sewers and water drains; 4,700 super yards, or thereabouts, of new roads, 36-feet wide, including kerbing and channelling; 3,700 super yards, or thereabouts, of back roads, 16 feet wide, including channelling; 450 yards, or thereabouts, of stone paving to footpaths. Together with manholes, street gulleys, vent shafts, &c., for the Neath Urban District Council. Mr. D. M. JENKINS, borough engineer, Gwyn Hall, Neath.

Waring, Cole & Waring	£4,999	16	0
Thomas	4,640	0	0
Thompson	4,477	16	2
Jenkins & Co.	3,524	11	10
Jones, jun.	4,396	5	0
Morgan	4,097	2	7
Scott	4,059	17	1
Willis	3,891	7	6
Barnes, Chaplin & Co.	3,868	0	5
Sayers	3,841	15	5
Collins & Co.	3,822	8	10
HILL (*accepted*)	3,693	0	3

ROTTINGDEAN.

For erection of four receiving homes and a separate infirmary adjoining the Warren Farm Schools, for the Brighton Board of Guardians. Mr. J. W. HAWKER, architect, Brighton. Quantities by Mr. J. W. HAWKER, surveyor, Brighton.

Rowland Bros.	£8,732	0	0
Lawrence & Son	8,228	0	0
Saunders Bros.	8,198	0	0
Field & Cox	8,100	0	0
Longley & Co., Horsham	7,988	0	0
Coles	7,964	0	0
Martin & Sons	7,745	0	0
Patrick	7,698	0	0

SOUTH HORNCHURCH.

For enlargement of school for the Essex Education Committee (Romford District Sub-Committee). Mr. A. S. R. LEY, M.S.A., architect, 214 Bishopsgate, E.C. Quantities by Mr. J. B. H. Low, Q.S.A., 74 Duke Street, Chelmsford.

Hawkey & Oldman	£2,132	0	0
McCormick & Sons	1,920	0	0
Chessum & Sons	1,833	0	0
Hammond & Son	1,797	0	0
Drever	1,757	0	0
Brown Bros.	1,739	0	0
Willmot	1,689	0	0
Bruty & Son	1,650	0	0
Wells & Co.	1,630	0	0
F. & E. Davey	1,620	0	0
Dowsing & Davis	1,575	0	0
Trudgett	1,560	0	0
G. BROWN, Grays (*accepted*)	1,456	0	0
Fryd (*withdrawn*)	1,370	0	0
Architect's estimate	1,500	0	0

WALSALL.

For the construction of an underground convenience on the Bridge. The Borough Surveyor, Walsall.

GOUGH & SON, Wolverhampton (*accepted*)	£1,690	0	0

SHREWSBURY.

For new water supply to Cound Hall, with Maignen softening apparatus and fire hydrants. Messrs. MARK H. JUDGE, SON & HAYLER, architects and sanitary engineers, 7 Pall Mall, London.

Exclusive of supplying the main.

W. H. Smith & Co., Whitchurch	£637	0	0
Perkins Brothers, Shrewsbury	552	0	0

For supply of 1,894 yards of 4-inch main.

Clay Cross Co.	£277	0	0
Staveley Coal and Iron Co.	277	0	0
Robert Maclaren & Co.	254	0	0

TWO WATERS (HERTS.).

For erection and completion of a public elementary school building for about 250 scholars, playsheds, boundary fences, drainage, and other works in connection therewith, at London Road, Two Waters, for the Local Education Authority. Mr. W. R. LOCKE, borough surveyor, Town Hall, Hemel Hempsted. Quantities by Mr. J. B. H. Low, Chelmsford.

Smith	£4,000	0	0
Honour & Son	3,942	0	0
Brown	3,890	0	0
Timberlake	3,685	0	0
Higgs	3,614	0	0
W. & D. Wilkins	3,498	0	0
Fisher	3,425	0	0
Henson & Son	3,421	0	0
Webster & Cannon	3,398	0	0
Beardsmore & West	3,299	0	0
O. P. Drever (*recommended*)	3,238	0	0

WALES.

For foundations and building basement and sub-basement of the first portion of the Museum, Aberystwyth, for the Council of the National Museum for Wales. Messrs. SMITH & BREWER, architects, 2 Gray's Inn Square, W.C.

Airds, Ltd.	£40,079	18	7
Tucker Bros.	38,950	0	0
Knox & Wells	35,150	0	0
Building Construction Co.	34,890	0	0
Blake, Ltd.	34,850	0	0
Minter	34,823	0	0
McLaughlin & Harvey	34,550	0	0
Allan, Ltd.	33,734	10	10
Willcock & Co.	31,750	0	0
TURNER & SONS, Cardiff (*accepted*)	31,063	0	0

WELLINGBOROUGH.

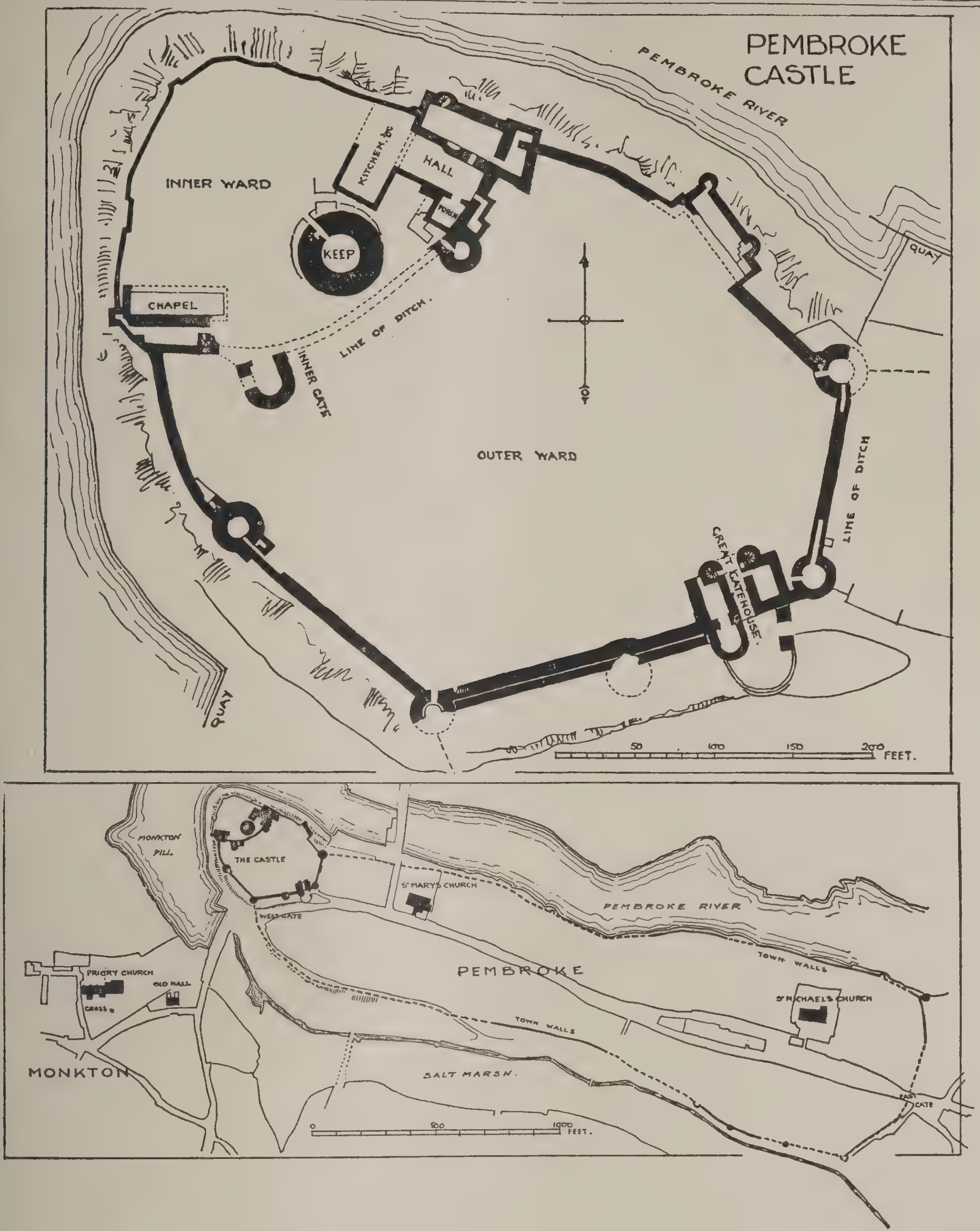
For the erection of Council infants' school. Messrs. TALBOT BROWN & FISHER, architects, Wellingborough.

Stevens	£3,139	10	0
Martin, Ltd.	3,080	0	0
Packwood	2,999	0	0
Hacksley Bros.	2,947	0	0
Andrews	2,875	0	0
Goodman	2,865	0	0
Fisher	2,864	0	0
Hickman & Son	2,864	0	0
Brown & Son	2,847	0	0
Drever	2,831	0	0
MARRIOTT, Rushden (*accepted*)	2,820	0	0

MR. THOS. HUDDLESTON, surveyor to the Grange-over-Sands Urban Council, has been appointed surveyor to the Ulverston Urban Council, at a salary of £200 per year.

THE Middlesex County Council have accepted, subject to the Local Government Board's sanction, the tender of Messrs. James Carmichael, Wandsworth, for the reconstruction of the Guildhall at Westminster. The amount of the tender was £73,360, while the architect's estimate was £80,000. The work must be carried out by the end of twenty-one months, subject to a heavy penalty for its non-completion.

THE Local Government Board has given its decision as to the application of the Dublin Corporation for sanction to a loan of £128,129 for extensions to the electricity works. The Board has decided to authorise the raising of £100,000 (including the £50,000 already sanctioned), and it is of opinion that, before sanction to borrowing beyond that amount is given, a clear statement of expenditure and definite proposals, supported by plans, specifications, and estimates for any further works should be submitted. The Board points out that contracts have been arranged for important works in a somewhat loose manner.



PLANS ILLUSTRATING EXCURSION OF ROYAL ARCHÆOLOGICAL INSTITUTE. (See p. 94.)

CUTLERS' HALL, SHEFFIELD.

The large hall known as the Cutlers' Hall at Sheffield is undergoing an important scheme of decoration from the designs and drawings of Walter H. Brierley, Esq., architect, of York.

One of the features of this scheme is a magnificent marble dado around the entire hall, rising to a height of 9 feet 6 inches from the floor level, formed with a rich "green vert tinos" skirting and frieze, and opened or quartered panels of specially selected Connemara green marble, the architraves and soffits of doorways and bands round the Irish green panels being in richly marked purple "Levanto" or "Porphyry," all the external angles to the marble work being finished in heavy moulded coinage bronze angle beads with wrought leaf ornament at the intersections of mitres to doorways.

At the front of the ladies' gallery the marble is continued above the dado in a soft, mellow cream marble known as "Mezzano" to the height of the handrail, finishing with a heavy moulded coinage bronze capping into which the standards supporting the handrail (all in the same metal) are fixed.

The whole of this work was entrusted by Mr. Brierley to the firm of J. & H. Patteson, marble-workers, &c., of Manchester, who have completed the work in a period of twenty weeks from receipt of instructions.

Above the marble dado, at intervals all round the hall, are massive double columns and pilasters up to the ceiling; these are being carried out in "Cippolino Scagliola." The dado breaks round the bases of these monoliths, standing two feet forward from the wall line, which gives a very fine effect to the scheme of panelling employed by the architect.

The richly-panelled ceiling and walls are being treated in a colour scheme in harmony with the rest of the decorations.

A font canopy of carved oak has been erected in St. Margaret's Church, Ilkley, from the designs of Mr. R. Norman Shaw, who was the architect for the building.

BUILDING PROGRESS IN THE PROVINCES.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit full particulars to Room 6, Imperial Buildings, Ludgate Circus, for insertion in this weekly list.)

ENGLAND.

Berkshire.
Earley.—Parish Church choir vestry enlargement. Mr. F. Newberry, contractor.

Cheshire.
Dukinfield.—Town Hall at the Municipal Buildings (£6,000 to £7,000).
Langley.—Council School alterations.
Macclesfield.—Workhouse alterations.

Cornwall.
Gyllyngvase.—Sewerage scheme (£4,000).
Redruth.—Tramps' shelters at the Workhouse (£360).
St. Austell.—Cottage Hospital (£2,500). Messrs. Wheatley & Seddon, architects. Mr. Carkeek, contractor for £1,961.
St. Dennis.—Liberal Club (£300).
St. Ewe.—Parish Church restoration (£250).
Truro.—Seventeen houses at Waterloo, for artisans. Mr. F. C. Barnes, City Surveyor (£3,000). Tender accepted for £2,537.

Cumberland.
Egremont.—Cottage and Outhouses for the County Council.
Water supply. Mr. J. C. Boyd, A.M.I.C.E., engineer.
Wigton.—North-Western water supply scheme. Council surveyor.

Devonshire.
Ilsington.—Water supply scheme (£4,900).

Essex.
Heybridge.—Council School.
Hornchurch.—Parish Council Public Offices.
Leigh.—U.D.C. Offices. Mr. J. W. Liversedge, Council Surveyor. Mr. F. Davey, contractor.
Ockendon.—Sewerage scheme.
Southend.—Synagogue (£2,500). Messrs. Parkes & Evans, architects. Mr. E. Leaney, contractor.

Hampshire.
Alton.—Cottage Hospital (Coronation Memorial) extension.
Eastleigh.—Isolation Hospital (£5,000).
Church extension (£4,000).

Kent.
Canterbury.—Parish Hall at St. Stephen's.
Great Chart, Kingsnorth and Shadoxhurst.—Water supply scheme.
Kemsing.—Coronation Memorial Fountain.
Kingsnorth.—(See above.)
Lydd.—House in New Street. Mr. Thurlow Finn, architect.
Sevenoaks.—Eight cottages in Bradbourne Park Road.
House in Hitchen Hatch Lane.
Shadoxhurst.—(See above.)

Lancashire.
Salford.—House at Buile Hill Park. Mr. W. H. Matley, architect.
Wingates.—St. John's School additions and alterations for 321 scholars.

Lincolnshire.
Bennington.—Canon Disbrowe Memorial in the parish church: stained glass window and brass tablet (£200).
Crosby.—(See below.)
Kirkby-on-Bain.—Parish Room.
Scunthorpe and Crosby.—Sewerage scheme.

Norfolk.
Acle.—St. Edmund's Church: Restoration (£300 to £400).
Heacham.—Water supply scheme (£5,500). Mr. Stevenson, engineer. Mr. R. Shanks, contractor, for £2,975.
Shadingfield.—Church restoration.

Nottinghamshire.
Mansfield Woodhouse.—Mission Church (£1,000).

Suffolk.
Lowestoft.—Two houses near Lake Lothing. Mr. F. G. Robinson, architect.
Four houses, Worthing Road.
Six houses, London Road South. Mr. R. C. Todd, architect.
Sudbury.—Post Office. Mr. Alfred Howard, architect.

Surrey.
Farnham.—Electricity Power Station.
Godalming.—Picture Palace in Station Road (accommodation for 300).
Woking.—Garden suburb containing sixty-eight villas (£20,000).
Technical Institute and Secondary School.

Sussex.
Ashurst Wood.—Sewerage scheme. Messrs. Hutchinson & Co., contractors (£5,467).
Bognor.—Pier pavilion extensions.
Workmen's dwellings in Sheepwash Lane (£2,300).
Brighton.—Four receiving homes and an infirmary at Warren Farm Schools. Messrs. Mark Martin & Son, contractors (£7,745).
Chichester.—High School for Girls: caretaker's house.
Crowborough.—Council school enlargement.
East Grinstead.—Swimming bath (£360).
Wick.—Drainage scheme.
Worthing.—Outpatients' (Edward VII. Memorial) department at the hospital.

Warwickshire.
Coventry.—Housing scheme completion (£31,000).

Westmorland.
Burton.—Sewerage scheme. Messrs. Taylor & Wallin, engineers.

Yorkshire.
Bamford.—Foreman's lodge at the Council filter beds. Messrs. W. B. Starr & Hall, architects.
Holme-on-Spalding Moor.—Parish Church restoration.
Malton.—Workhouse Laundry (£1,000).
St. Deny's-with-St. George.—Parish Church alterations.
Sheffield.—University Applied Science Department buildings in Charlotte and Portobello Streets. Messrs. Gibbs, Flockton & Teather, architects.
York.—Workhouse children's receiving home (£1,250). Mr. J. H. Morton, architect.

WALES.

Carmarthen.—Joint Counties Lunatic Asylum additions and alterations.
Llandudno.—Church at the west shore.

SCOTLAND.

Ayr.—Farm Buildings at Cunning Park (£1,200).
Riverstone Villa, Racecourse Road (£900).
School additions, Green Street Lane (£450).
Langholm.—Additions to warehouse, offices, &c., for Messrs. M'Intyre, Cairns & Co.

IRELAND.

Mullingar.—Ulster Banking premises. Messrs. Blackwood & Jury, MM.R.I.A.I., architects.
Newry.—Picture Theatre. Mr. W. S. Barber, M.R.I.A.I., architect.

Clydebank Town Council met on Monday, when the plans for the new public library were again under consideration. The successful architects were Messrs. Gardner, Miller & White, Glasgow, and their plans were submitted for examination to the librarian of Motherwell, who pointed out what he considered a serious defect in the arrangement of the building. It was agreed to await the return to business of Mr. Miller, of the successful firm, before taking any steps in the matter.

At the first flower show held at the Hull Garden Village last week it was announced that Mr. Fred. J. Reckitt, of Woodgrange, Holderness Road, has expressed a desire to present twelve almshouses to the village similar to those which Miss Reckitt gave two years ago. They would be built in the form of a quadrangle. When these are completed there will be thirty-eight almshouses in this particular district.

The Edinburgh Dean of Guild Court have granted warrant to the Edinburgh School Board for the erection of a new school at Viewforth. The new school will provide accommodation for 1,200 pupils in forty class-rooms, each containing thirty, an allowance of 16 square feet per pupil having been given in all the class-rooms. There will be two gymnasia, each measuring 80 feet by 40 feet, and six large workshops. The total cost of the building will be about £54,000. The removal of the existing buildings on the site has already been begun. The architect of the new school is Mr. John A. Carfrae, 3 Queen Street, Edinburgh.

BOARD SCHOOL PLAYGROUNDS.

The President of the Board of Education has appointed a Departmental Committee to inquire and report

(*a*) Whether it would be consistent with due regard to educational and hygienic considerations that the minimum standard of playground accommodation for new public elementary schools prescribed in the building regulations of the Board of Education, viz. 30 feet per head of accommodation, should be modified or adjusted according to the size, design, or situation of schools, the proximity of recreation grounds or open spaces, the density of population, the cost of land, or otherwise.

(*b*) How far it is possible or desirable to define more precisely the standard of playground accommodation which the Board of Education will require under the code of regulations for public elementary schools in the case of existing schools, or to regulate the practice of the Board of Education in dealing with cases in which the playground accommodation is considered to be insufficient.

The committee will consist of Mr. L. A. Selby-Bigge, C.B., Principal Assistant Secretary of the Elementary Education Branch of the Board of Education (chairman); Sir George Newman, Chief Medical Officer of the Board of Education; Mr. J. C. Iles, H.M.I., Divisional Inspector for the North-Western Division; Mr. F. H. B. Dale, H.M.I., Divisional Inspector for the Metropolitan Division; Mr. A. B. McLachlan, of the Local Government Board; with Mr. L. J. Morison as secretary.

BUILDING IN MELBOURNE.

The following picture of the condition of the building trade in Melbourne is drawn by the *Melbourne Argus*:—

Great difficulty is being found by architects and others who have building contracts to let to find builders who are willing to undertake them. Even for large city jobs, where there is abundant room for high profit, very few tenders are received, while tenders have to be called again and again for important country jobs before anybody can be found willing to execute them. The reason is not that builders are less enterprising or that they are at all unwilling to undertake the work. They are not able to do it, because they cannot obtain tradesmen to man the jobs. The difficulty has reached an acute stage. A week ago the master builders met and considered the whole question. The Master Builders' Association has 110 members. Details of the number of men urgently needed by all of them showed that the trade was undermanned to the enormous extent of 50 per cent. The number of bricklayers, plasterers, painters, plumbers, and so forth requires to be doubled before it will be possible for the builders to cope with all the work which requires to be done.

It is not that there has been any extraordinary boom in the building trade. For years past there has been a steadily increasing activity in the trade. The population of Melbourne and of Victoria has been growing, and people must be housed. Businesses of all sorts have been increasing, and larger buildings will be needed. Hotel and coffee palace accommodation alone has been proved every year to be entirely inadequate. At all holiday seasons the existing accommodation is unable to meet requirements. There has been extension in this direction. Hundreds of thousands of pounds are being spent every year in that branch of business alone. Warehouses, factories, shops, are being rebuilt and enlarged in all parts of the city. Public buildings are being erected to meet the increased requirements of Government institutions. Hospitals and charitable institutions of all kinds require more building accommodation. The growth of population and the increased prosperity of the country are jointly responsible for this, for it is the same all over Australia. In Sydney a great number of very large building operations have been postponed until the builders are able to deal with them. The tradesmen to do the work are not to be found in Australia, and those who want the buildings just have to wait.

At least 500 bricklayers are urgently needed in Melbourne. That number could find employment to-day if they were to present themselves to the various builders. It is a very conservative estimate, for it implies that the 110 builders who are members of the Association want less than five men apiece, whereas every one of them could employ five, and many of the larger builders would gladly engage twenty or thirty if they were obtainable. By "bricklayer" is meant a skilled tradesman. Every man who calls himself a bricklayer does not comply with that description. There are numbers of men who profess to be bricklayers whom no contractor will engage. Their work has to be all pulled down again. But even for these men there is abundance of employment, if skilled tradesmen could be obtained to do the better class work. The bricklayer is the essential tradesman of the building trade. A scarcity of bricklayers means that a great amount of work cannot be attempted, and that other branches of the trade cannot be as fully employed as they would otherwise be. It is estimated, however, that if 500 bricklayers could be obtained there would be room also for at least 150 additional bricklayers' labourers, 150 plasterers, and 200 painters, carpenters, carpenters' labourers, and plumbers.

That means that there is immediate employment waiting for at least 1,000 experienced men in the building trade. In these estimates no account has been taken of the needs of the country districts, though the scarcity of labour there is greater than in the city, for tradesmen have gradually deserted the country to take up the more congenial work in Melbourne.

Wages in the trade are high, while the hours are limited to forty-four per week. Bricklayers receive a minimum of 1*s.* 6*d.* per hour—66*s.* per week. Plasterers are paid 11*s.* 8*d.* per day. Painters receive 1*s.* 3*d.* per hour. Plumbers' wages are 1*s.* 7½*d.* per hour, and tuck-pointers are paid 11*s.* to 12*s.* per day. Carpenters receive from 69*s.* 8*d.* a week for foremen who exercise control over the work of three men or more, to 52*s.* 3*d.* a week for ordinary carpenters' labourers. The working carpenter receives 64*s.* 2*d.* per week. Their hours are forty-four a week. They do not commence work until a quarter to eight o'clock in the morning (double rates are paid for time worked before that hour), and do not work after a quarter past five o'clock on week days and a quarter-past twelve o'clock on Saturdays). All holiday work is paid for at overtime rates. Wages boards control the wages and hours of all the workmen in the building trade, and some of these boards are even now considering determinations which will increase the rates.

Although these rates are fixed by wages boards, they are only the minimum. Builders pay good tradesmen considerably higher rates. An increase of 1*s.* a day is gladly given to retain the services of good tradesmen. They are too valuable to lose, and builders, both in this State and in others, continually find themselves bidding against one another for the services of competent men. Instead of 12*s.* a day—the minimum rate of pay—there are numbers of good men obtaining 13*s.* and 14*s.* Builders resort to the most extraordinary means to retain their men. Often on small contracts tenders are put in at absurdly low rates. The builder wants the contract merely to keep all his hands in his employment, so that he may have them when some large job is to be executed. The constant dread of the builder is that he may lose some of his scanty staff, and be mulct in penalties because he cannot finish his work within the contract time.

A few tradesmen come in as immigrants occasionally. They instantly find employment at wages far above their wildest dreams in Great Britain. In most cases they have come to Victoria to settle on the land, but have found it more profitable to resume their trades. There is abundant need for the importation of tradesmen, all of whom could be assured work almost from the day they landed here. The need is not a passing one. It has gradually grown to its present acute state, and it will become more and more acute as time goes on. There is no sudden access of activity in the trade. On the contrary, the lack of hands in other industries is restricting expansion in them. Any proper increase of industrial immigration would supply operatives to half-a-dozen industries which are now being held back. Capital is ready to be invested in new factories and in extensions of existing factories. All this means continued building activity, and a constant demand for tradesmen.

The North Central Waggon Company are stated to be in negotiation with the object of erecting works at Briton Ferry.

The Crystal Palace, it is officially announced, will be offered by auction by order of the Court on November 28 by Mr. Howard Frank, acting in conjunction with Mr. J. Roy Lancaster.

The Military Hospital at York will shortly be brought thoroughly up-to-date. The alterations will be of an extensive character, and the additions to the main building will include a new ward, operating theatre, stores, and various outbuildings. The works will occupy about a year, and will be carried out in sections. The Secretary of State for War has invited tenders.

L.C.C. SCHOOL CONTRACTORS.

The Education Committee of the London County Council at the last meeting made recommendations dealing with the cases which have arisen since their report of December 14, 1910, involving additions to, and removals from, the list of contractors selected to tender for work at Council schools. Copies of the standing orders relating to contracts, rates of wages, and hours of labour have been forwarded to each of the contractors whose name it is proposed to add to the list, and each firm has signified its willingness to accept the conditions laid down therein. The usual inquiries, except as regards Rowley Bros. and F. W. Fletcher, who have already carried out work for the Council, have been made by the solicitor and architect with satisfactory results. They recommend—

(*a*) That the name of Brand, Pettit & Co., 147 West Green Road, South Tottenham, N., be added to the selected list of contractors to be invited to tender for new schools and enlargements.

(*b*) That the name of Courtney & Fairbairn, Ltd., Marlborough Works, 377 Albany Road, Camberwell, S.E., be added to the selected list of contractors to be invited to tender for new schools, enlargements and structural alterations, not exceeding £20,000 in value.

(*c*) That the name of Rowley Brothers, Westbury Avenue, Tottenham, N., be added to the selected list of contractors to be invited to tender for new schools, enlargements, structural alterations and minor improvements.

(*d*) That the names of the undermentioned firms be added to the selected list of contractors to be invited to tender for new schools, enlargements and structural alterations, not exceeding £5,000 in value, repairs to buildings, cleaning and painting—

(i.) F. W. Fletcher, 4 Maybury Street, Aldis Street, Lower Tooting, S.W.; (ii.) Woodward & Co., 13 Wilson Street, Finsbury, E.C.

(*e*) That the names of the undermentioned firms be added to the selected list of contractors to be invited to tender for cleaning and painting—

(i.) F. W. Dainton, 17 Calabria Road, Highbury, N.; (ii.) A. H. Inns, Camomile Street Chambers, Bishopsgate, E.C., on probation.

(*f*) That the name of H. G. Latham, 14 Catherine Street, Croydon, be added to the selected list of contractors to be invited to tender for heating apparatus, painting, plumbing and drainage work, not exceeding 750*l.* in value.

(*g*) That the name of Watson, Duncan & Co., 62 Berners Street, W., be added to the selected list of contractors to be invited to tender for heating apparatus.

(*h*) That the name of J. & W. Shale, 127 and 129 Rhodeswell Road, Limehouse, be added to the selected list of contractors to be invited to tender for providing and erecting iron staircases.

(*i*) That the name of F. Smith & Co., Carpenters Road, Stratford, E., be added to the selected list of contractors to be invited to tender for small contracts for iron building work.

(*j*) That the names of W. E. Blake, Ltd., Plymouth, and The Building Construction Company, Ltd., Oceanic House, 1a Cockspur Street, S.W., be substituted for those of W. E. Blake and Waring White Building Company, Ltd., respectively, on the selected list of contractors to be invited to tender for works to Council schools.

(*k*) That the names of the undermentioned firms be removed from the selected list of contractors to be invited to tender for the works to Council schools specified in each case—

Repairs to school buildings, cleaning and painting—(i.) Graham & Graham, 2 Weymouth Street, Portland Place, W.; (ii.) W. Gray & Co., 76 East India Dock Road, E.; (iii.) G. H. Rowe, 3 York Street, St. James's, S.W.; (iv.) J. A. Stayner, 208 Bermondsey Street, S.E.

Structural alterations and repairs, cleaning and painting—(v.) Grace & Marsh, 79 Tamworth Road, Croydon; (vi.) W. Eyre, 22 Great Chapel Street, Westminster, S.W.; (vii.) H. Eady, 244 Belsize Road, Kilburn, N.W.; (viii.) M. Calnan & Son, 242a Commercial Road, E.; (ix.) E. Orpin, 92 Anerley Road, S.E.

Repairs to buildings on schedule—(x.) Leslie & Co., Ltd., Kensington Square, W.; (xi.) W. Martin, 55 and 57 Rivington Street, Curtain Road, E.C.; (xii.) A. Black & Son, Perry Vale, Forest Hill, S.E.; (xiii.) E. A. Roome & Co., 36 Basinghall Street, E.C.; (xiv.) W. Akers & Co., Ltd., 13 High Street, South Norwood, S.E.; (xv.) James Smith & Sons, Ltd., Junction Works, South Norwood, S.E.; (xvi.) H. C. Horswill, 182 Green Street, Forest Gate, E.

Cleaning and painting—(xvii.) Pasterfield & English, 51 Sunnyhill Road, Streatham, S.W.; (xviii.) J. J. Richards, 9 Shannon Grove, Brixton, S.W.

VARIETIES.

Messrs. Kerr & Watson, architects, have prepared plans for the erection of a public slaughter-house at Johnstone, N.B., at a cost of £2,000.

The Newcastle Board of Guardians have closed a controversy of two or three years' standing by deciding last week to erect the proposed additional hospital block within the workhouse grounds. The cost of the building is estimated at £18,000.

The borough buildings at Abingdon are about to be renovated. The scheme includes the reconstruction of the Council Chamber roof, the renovation of the large room, and the conversion of the old Grammar School-room into a dining and assembly room connected with the Guildhall suite of rooms. The total cost is about £1,100.

The Plans Committee of the Lower Ward District of the County of Lanark at their last meeting disposed of the following plans of houses and buildings, viz.: Stepps Parish Church, erection of side aisle, extension to church, hall with retiring room and offices adjacent to church, Whitehall Avenue, Stepps; Glasgow Parish Council, Epileptic Colony Buildings at East Muckcroft, Chryston; James Beattie, Chryston, Mission Hall, Chryston.

The Scottish Education Department has approved of plans of the Provincial Training College and Practising School, about to be erected in Dundee at an estimated cost of about £60,000. The buildings are to be erected in Park Place, Nethergate, and the area of the site, which is occupied at present by five villa properties, extends to about 1¾ acres, the main frontage to Park Place being 123 yards. The plans, which have been prepared by Mr. T. Martin Cappon, F.R.I.B.A., architect, Dundee, provide for both buildings being four storeys in height. The College buildings are connected to the practising school by a covered bridge. The practising school will provide accommodation for 400 pupils. It is expected that building work will soon commence.

The Council of the Institution of Civil Engineers have made the following awards in respect of students' papers read during the session 1910-1911: The "James Forrest" Medal and a Miller Prize to Mr. D. Hay, B.Sc. (Birmingham), and Miller Prizes to Messrs. D. A. Howell (Bristol), R. Bonner (Bristol), G. F. Walton (London), R. G. Parrott (Manchester), E. E. Farrant (London), A. C. Dean, B.Sc. (Manchester), H. W. Coales (Birmingham), A. H. Meade (London), A. C. Swales (Leeds), and H. J. F. Gourley, B.Eng. (Manchester).

An extensive block of new buildings at Sutton Valence School has been opened by the Archbishop of Canterbury. The additions comprise a new school planned on the central hall system and two new boarding-houses, each capable of receiving fifty-six boarders. These occupy three sides of a spacious quadrangle overlooking the Weald of Kent, and forming a notable landmark when seen from the South-Eastern Railway between Headcorn and Staplehurst. The centre of the front is dominated by a turret with a clock furnished with the Westminster chimes. From the double range of galleries of the assembly hall radiate the various laboratories, lecture theatres, studios, and classrooms. In the course of his address his Grace remarked that they were assisting in a way of making history which was characteristic of England. Two old foundations, both founded in Queen Elizabeth's reign, had been carried on from age to age with chequered stories—sometimes greater, sometimes less—and had held their own down to the present day. William Lambe in 1576 had founded that school; Lady Dacre in 1594 had founded another school in Westminster. And now these two great channels—two streams parted in the reign of Queen Elizabeth—had joined together in King George's reign. The old had been adapted to the needs of modern times without any rupture with the past, and without any violation of old traditions. He warned his younger hearers that they possessed "the perilous inheritance of a great name." They were proud of their school's past history, and the Elizabethan times were grand. But now, if they would look forward, there were grander times still, and grander opportunities than had existed in any previous age.

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The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

COMPETITIONS OPEN.

ATHENS.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l*. A first prize of 800*l*., and a second prize of 320*l*. will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

AUSTRALIA.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

BARNSLEY.—Oct. 7.—The Town Council invite competitive drawings for a proposed extension of public baths, including a swimming bath, Russian and vapour baths, and slipper baths, in connection with the existing public baths in York Street and Race Street, Barnsley. The Town Council offer premiums of £50, £30 and £20. Mr. J. H. Taylor, M.I.C.E., borough surveyor, Manor House, Barnsley.

BRISTOL.—The directors of the Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

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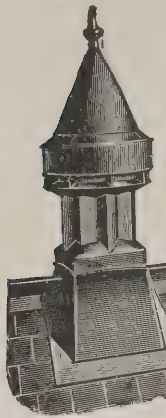

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Coseley.—Plans for Council school for 200 children for the Coseley Education Committee, at Dimmock Street, Parkfield, Coseley, W. Dudley. Conditions, one guinea, returnable on receipt of plans. Mr. Fred. J. C. Poole, Secretary, Education Offices, Coseley, near Bilston.

Hastings.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1*s.* deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

London.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1*s.*, which will be refunded on receipt of a bona-fide design or return of conditions within one month of receipt. All particulars from Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

Murton.—Oct. 4.—The Easington Rural District Council invite plans for three separate types of houses, of which it is proposed to build 100 at Murton Colliery, Durham. The houses to be in streets of twenty with 16 ft. back streets, 18 ft. frontage, and garden ground in front of each house to a depth of 30 ft., an earth closet and outside pantry to be provided for each house. Strict compliance with the Council's by-laws and the Local Government Board regulations will be required. The following are the types of houses:—Type A.—28 ft. gable, three bedrooms, one living room, one sitting room, scullery (offshot), with kitchen range and bath. Type B.—25 ft. gable, three bedrooms, one living room, scullery, with kitchen range and bath. Type C.—Two bedrooms, one living room and scullery, with kitchen range and bath. Appearance and economy of structure will be considered. The successful candidate will receive 2½ per cent. commission upon the net cost of buildings when erected. No other remuneration will be paid. Mr. J. M. Longden, Council Offices, Easington, Castle Eden.

Newcastle-upon-Tyne.—The Education Committee invite competitive plans from architects practising in Newcastle for a Senior Mixed School and a Junior Mixed School, each to accommodate 365 children, at Walker Gate. Mr. Spurley Hey, secretary, Education Offices, Northumberland Road, Newcastle-upon-Tyne.

Pontefract.—Sept. 9.—The Council of the Borough invite competitive designs from architects practising in the West Riding of Yorkshire for the erection of public swimming and other baths at a cost not to exceed £4,500. Particulars and conditions as to the nature of the buildings, the remuneration of the successful architect, and the premiums for the designs adjudged to be first and second, can be obtained of the Borough Surveyor, Municipal Offices, Pontefract.

Skegness.—Sept. 5.—The Executive Committee invite architects to submit competitive designs and estimates for the proposed Cottage Hospital. Building to cost £900. Premium for design placed first, £15 15*s.* Designs to be sent in by Sept. 5 to Mr. W. W. Robinson, hon. secretary, Capital and Counties Bank, Skegness.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Wales.—The Cardiff Education Committee invite designs and estimates in competition for a technical institute proposed to be erected in Cathays Park. Mr. J. S. Gibson, architect, will act as assessor. Full particulars will be sent to architects on application, accompanied by a deposit of £2 2*s.*, which will be returned to all architects submitting bona-fide designs or who return the conditions within six weeks. Mr. J. Jackson, director of education, Education Offices, City Hall, Cardiff.

Wales.—Sept. 6.—The Committee of Visitors of the Joint Counties Lunatic Asylum, Carmarthen, are contemplating various repairs and alterations to the existing asylum, together with the erection of additional buildings, and architects are invited to submit full particulars of their terms and previous experience of asylum work, together with copies of testimonials, to Mr. W. J. Wallis-Jones, clerk to the Visitors, 34 Quay Street, Carmarthen.

CONTRACTS OPEN.

Addington.—Sept. 8.—For the builders' work necessary in erection of additions to coal store at Addington waterworks, for the Croydon Town Council. Deposit £1 1*s.* The Borough Engineer, Town Hall, Croydon.

Altofts.—Aug. 28.—For erection of a corn chamber over the cart shed at the Council depôt. Mr. A. E. Greaves, clerk, Altofts.

Barrow-in-Furness.—Sept. 4.—For building of new offices in the Engineering Department of Naval Construction Works. Deposit £2 2*s.* Vickers, Ltd., Naval Construction Works, Barrow-in-Furness.

Brighton.—Sept. 1.—For certain alterations to the Grafton Street lavatories at No. 45 and 46 Upper St. James's Street. The Borough Surveyor, Town Hall, Brighton.

Cambridge.—Aug. 29.—For carrying out repairs and alterations to 12 Corn Exchange Street. The Borough Surveyor, Guildhall, Cambridge.

Consett.—For the following works, for the Consett Iron Co., Ltd., viz.:—(1) Reconstruction of cottages, Princes Street, Consett; (2) reconstruction of cottages, Plantation Street, Leadgate; (3) reconstruction of cottages, Derwent Cottages; (4) alteration of old pay office, Chopwell; (5) alterations and repairs, Ash Tree Farm, Chopwell. Consett Iron Company, Consett, Durham.

Consett.—Aug. 29.—For proposed new millinery department, alterations, additions, &c., at Consett, Durham, for the Consett Industrial and Provident Society, Ltd. Mr. J. J. Eltringham, architect, Derwent Street, Blackhill.

Countess Wear.—Aug. 31.—For new farm buildings at Wear Barton, Countess Wear, near Exeter. Deposit £3. Messrs. E. H. Harbottle & Son, architects, County Chambers, Exeter.

Craghead.—For erection of thirty-two houses at Craghead, Durham, for Messrs. Thomas Hedley & Bros. Mr. J. Wm. Rounthwaite, A.R.I.B.A., architect, 13 Mosley Street, Newcastle-on-Tyne.

Devizes.—Sept. 4.—For works in erection of two new wards and alterations and additions to the existing buildings at the Devizes Cottage Hospital. Mr. A. J. Randell, M.S.A., 4 St. John Street, Devizes.

Edinburgh.—Aug. 30.—The School Board invite tenders for mason and joiner works, &c., in connection with alterations at Portobello H.G. School. Mr. J. W. Peck, clerk, School Board Offices, Castle Terrace, Edinburgh.

Ellesmere Port.—Sept. 13.—The West Cheshire Water Co. invite designs and tenders for erection at Ellesmere Port of a ferro-concrete water tower. Capacity, 200,000 gallons. Mr. Isaac Carr, M.I.C.E., Farnworth, Widnes.

Farnborough (Hants).—Aug. 28.—For the following work, for the Farnborough Urban District Council:—(*a*) Erection of fire station behind the Town Hall; (*b*) private street improvements in Oxford, Yetminster, and Windsor roads. Deposit £2. Mr. J. E. Hargreaves, surveyor, Town Hall, Farnborough.

Ferryhill.—For building an Independent Methodist Church at Dean Bank, Ferryhill, Durham. Mr. J. R. Grossart, architect, Durham Road, Finden Hill, Sacriston.

Glasgow.—Sept. 4.—For the following works in connection with new epileptic colony, East Muckcroft, Chryston, for the Glasgow Parish Council, viz.:—(1) Digger and brick work; and (2) carpenter, joiner, glazier, and ironmongery works. Deposit £2 2*s.* Mr. J. R. Motion, inspector and clerk, Parish Council Chambers, 266 George Street, Glasgow,

Glasgow.—Sept. 4.—For the works to be executed in the extension of the company's head offices, for the Caledonian Railway Co. Deposit £2 2*s.* The Engineer, Buchanan Street Station, Glasgow.

Glasgow.—Sept. 25.—For the extension of Glasgow General Post Office, for the Commissioners of H.M. Works and Public Buildings. Tenders are required for the whole work and not for separate trades. Deposit £1 1*s.* His Majesty's Office of Works, General Post Office, Glasgow, and H.M. Office of Works, 3 Parliament Square, Edinburgh.

Grays.—Sept. 4.—For the erection of two cottages at the Stafford Homes, near Grays, Essex, for the Stepney Union. Send names and £2 2*s.* deposit by Sept. 4 to Mr. T. G. Stacey, clerk, Union Offices, Barnes Street, Stepney, E.

Heaton.—Sept. 4.—For whole or separate trades in erection of new church, Heaton, Bolton. Messrs. Austin & Paley, architects, Lancaster.

Hockley (Birmingham).—Sept. 5.—For erection of a stable at the Great Western Railway Station. The Engineer, Wolverhampton Station.

Hursley.—Sept. 1.—For erection of four pairs of cottages on the Hursley Estate. Mr. J. E. Thorold, Hursley Estate Office, Winchester.

Ireland.—Aug. 28.—For the taking down and re-erection of a corrugated roof carried on a steel framework, the supply and erection of an addition thereto, the building of a brick subsidiary store, and also the building of an office and lavatory accommodation to the running shed, at their Dundalk Station, for the Great Northern Railway Co. (Ireland). Deposit £2 2*s*. Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

Ireland.—Aug. 28.—For erection of premises at Mullingar, for the Directors of the Ulster Bank, Ltd. Deposit £2 2*s*. Messrs. Blackwood & Jury, Ms.R.I.A.I., architects, 41 Donegall Place, Belfast.

Ireland.—Aug. 28.—For erection of eleven labourers' cottages and fencing plots for same, for the Rathdrum Rural District Council. Mr. B. Manning, clerk, Rathdrum, Ireland.

Keighley.—Aug. 28.—For the excavator's, mason's and bricklayer's work, carpenter and joiner's work, and glazier's work, required in erection of new school at Highfield. Send names and addresses by letter not later than Aug. 28 to the Secretary, Education Offices, Cooke Street, Keighley. Mr. A. P. Harrison, M.S.A., architect, 136 Highfield Lane, Keighley.

Leeds.—Sept. 5.—For the construction of a chimney, 150 feet high, and flue, at the Destructor Works, Kidacre Street. Mr. W. T. Lancashire, M.I.C.E., city engineer, Municipal Buildings, Leeds.

Lingfield.—Oct. 2.—For building new drill hall premises at Lingfield, for the Territorial Force Association of the County of Surrey. Messrs. Jarvis & Richards, architects to the Association, 10 Queen Anne's Gate, Westminster, S.W. Send names and £1 1*s*. deposit by Sept. 15 to Messrs. Robinson & Roods, quantity surveyors, 8 New Court, Carey Street, Lincoln's Inn, W.C.

London.—Aug. 30.—For the erection of a house for the Steward at the Western Fever Hospital, Seagrave Road, Fulham, S.W., for the Metropolitan Asylums Board. Deposit £1. Mr. W. T. Hatch, M.I.C.E., M.I.M.E., engineer-in-chief, the office of the Board, Embankment, E.C.

London.—Aug. 31.—For the execution of the following works at their Union Infirmary, Whipps Cross Road, Leytonstone, N.E., for the Guardians of West Ham Union:—(1) The formation of new foundations, &c., to the boilers and other works in connection therewith; (2) construction of a steel water tank upon the existing well-house; and (3) supply and delivery of a Lancashire boiler. The Clerk to the Guardians, Board Room, Union Road, Leytonstone, N.E.

London.—Sept. 2.—For altering and lengthening two double hot-water pits at St. Pancras Cemetery, East Finchley, for the St. Pancras Borough Council. Mr. C. H. F. Barrett, Town Clerk, Town Hall, Pancras Road, N.W., or the Superintendent at the Cemetery, East Finchley.

London.—Sept. 13.—For executing certain repairs and painting works at the casual wards, St. Leonard Street, Bromley-by-Bow, for the Poplar Board of Guardians. Send names and £2 2*s*. deposit by Sept. 1 to Messrs. J. & W. Clarkson, architects, 136 High Street, Poplar, E.

London.—Sept. 18.—For the extension of the offices, 95 The Grove, Stratford, for the West Ham Education Committee. Send names and £5 deposit by Sept. 4 to Mr. W. Jacques, A.R.I.B.A., architect to the Education Committee, 2 Fen Court, Fenchurch Street, E.C.

London.—Sept. 20.—For the erection of lavatory accommodation and shelters at Wormholt Park, Hammersmith, W. Mr. H. Mair, borough surveyor, Town Hall, Hammersmith, W.

Maldon.—Sept. 21.—For the erection of a police station at Maldon, Essex. Send names and £5 deposit by Aug. 30 to Mr. F. Whitmore, architect, Duke Street, Chelmsford.

Margate.—Sept. 4.—For erection of a refuse destructor, for the Corporation. Deposit £5. Mr. E. A. Borg, borough engineer, 13 Grosvenor Place, Margate.

Maryport.—Sept. 2.—For the proposed alterations and additions to Maryport Council School, also Netherton (Maryport) Infants' Council School, for the Cumberland Education Committee. Drawings and specifications at the office of the architect, Mr. J. Forster, M.S.A., 13 Earl Street, Carlisle.

Minehead.—Sept. 5.—For the erection of a stable at the Great Western Railway Station. The Engineer, Taunton Station.

Nantwich.—Sept. 16.—For erection of three single dwelling-houses and three sets of farm buildings, on the Sound Estate, near Nantwich, Cheshire. The County Estate Office, 49 Northgate Street, Chester, and at the Estate Office, 137 Nantwich Road, Crewe.

Neston.—Sept. 21.—For new handicraft and cookery centres and alterations to the Council school, Neston, Cheshire, for Bebington and Neston area. Deposit £1 1*s*. Messrs. Deacon & Horsburgh, architects, 12 St. George's Crescent, Liverpool.

Oldham.—Sept. 6.—For supply and delivery at their Rhodes Bank depôt, Mumps Station, Oldham (Lancashire and Yorkshire Railway), of 200 washdown water closets, cisterns and fittings, for the Sanitary Committee. The Borough Surveyor, Oldham.

Oxhill.—Sept. 19.—For building of retaining wall, levelling, and foundations for new iron school at Oxhill, Durham. Mr. N. Richley, Shire Hall, Durham.

Rawmarsh (Yorks).—Aug. 31.—For alterations to Surveyor's office. The Surveyor, Council Offices, Parkgate, Rotherham.

Rawtenstall.—Aug. 30.—For supply of the boundary railings required at the new Infirmary, Higher Pikelaw, for the Guardians of Haslingden Union. Mr. H. Ross, A.R.I.B.A., architect, Cannon Street Chambers, Accrington.

Richmond.—Sept. 7.—For erection of a receiving home for children at Parkshot, Richmond, Surrey, for the Guardians. Mr. E. J. Partridge, F.S.I., M.S.A., Bank Chambers, Richmond. Send 5*l*. deposit to Mr. P. Umney, clerk, Parkshot, Richmond.

St. Agnes (Cornwall).—Aug. 28.—For erection of a shop in Vicarage Road. Messrs. R. H. & E. W. Tonkin, architects and surveyors, Tregoney.

St. Helens.—Aug. 31.—For the plumbing, painting and glazing in connection with the extension of the Thatto Heath Council school. Deposit £1 1*s*. Messrs. Biram & Fletcher, architects, George Street, St. Helens.

St. Helens.—Sept. 20.—For the erection of an extension of the Thatto Heath Council school, off Elephant Lane. Deposit £1 1*s*. Messrs. Biram & Fletcher, architects, George Street, St. Helens, Lancs.

Sandbach.—Sept. 16.—For erection of one single dwelling-house and one set of farm buildings, on the Moston Estate, near Sandbach, Cheshire. Deposit £1. The County Estate Office, 49 Northgate Street, Chester, and at the Estate Office, 137 Nantwich Road, Crewe.

Scotland.—For the plumber, plaster, slater, asphalte, and glazier work required in connection with the erection of an infectious diseases hospital at Cameron Bridge, for the Town Council, Buckhaven. Deposit £1 1*s*. Mr. W. B. Telfer, burgh surveyor, Buckhaven.

Scotland.—Aug. 28.—For all departments of work necessary in erection of a new manse at Alvie, Kincraig, for the United Free Church of Scotland. Mr. A. Cattanach, architect, Kincraig, N.B.

Scotland.—Sept. 25.—For the carrying out of the various works in connection with the provision and construction of a refuse destructor installation for efficiently burning without nuisance the refuse of the city, for the Aberdeen Town Council. Mr. W. Dyack, M.I.C.E., burgh surveyor, Town House, Aberdeen.

Scotland.—Aug. 28.—For the mason, joiner, smith, glazier, slater, plumber, plasterer, tilelayer, and painter work of proposed school, Aberhill, Methil, for the Wemyss School Board. Deposit 1*l*. 1*s*. Mr. A. W. Taylor, clerk, Buckhaven.

Seaforth.—Aug. 28.—For the following works, for the Waterloo-with-Seaforth Urban District Council, viz.:—(a) Erection of stables, workshops, sheds, &c.; (b) sewering, paving, and concreting, at the Council's Store Yard, Cambridge Road. Deposit 10*s*. 6*d*. Mr. F. S. Yates, A.M.I.C.E., surveyor, Town Hall, Waterloo.

Sevenoaks.—Aug. 30.—For constructing a rain-water tank and plumbing work in connection therewith at the Isolation Hospital, Otford, near Sevenoaks. Mr. Ernest Pawley, architect, 86 High Street, Sevenoaks.

Sheffield.—Sept. 5.—For erection of buildings in Charlotte Street and Portobello Street, for the Department of Applied Science of the University of Sheffield. Messrs. Gibbs, Flockton & Teather, architects, 15 St. James's Row, Sheffield.

Sidcup.—Aug. 28.—For erection of the Sidcup Fire Brigade Station, the site being situated about one mile outside the boundary of the County of London, for the Foots Cray Urban District Council. Deposit 2*l*. 2*s*. Mr. W. Augustus Farnham, F.S.I., surveyor, Council Offices, Sidcup, Kent.

Stockport.—Sept. 1.—For the labour and materials required in erecting a retaining wall and extending the tramways car shed in Mersey Square. Mr. J. Atkinson, A.M.I.C.E., borough surveyor, Town Hall, Stockport.

Stratton St. Margaret (Wilts).—Aug. 28.—For the construction of shelters at the workhouse infirmary, for the Guardians of Swindon and Highworth Union. Mr. J. P. Kirby, clerk, 100 Victoria Road, Swindon.

Tewkesbury.—Sept. 9.—For alterations to property in Chance Street. Mr. W. Ridler, Borough Surveyor, Station Street.

Totnes (Devon).—Sept. 2.—For erection of buildings, concrete paving, and iron bullock and sheep pens in Totnes Market. Mr. W. F. Tollit, borough surveyor, 10 High Street, Totnes.

Wales.—For alterations to Wesley Chapel, Tredegar. Messrs. La Trobe & Weston, F.R.I.B.A., architects, 44 Corn Street, Bristol.

Wales.—For erection of twenty houses at Gorseinon. Mr. J. C. Rees, M.S.A., The Parade, Neath.

Wales.—Aug. 28.—For erection of a vestry and heating chamber in connection with New Trinity Congregational Church, Cowbridge Road, Cardiff. Rev. D. T. Evans, 5 Eton Place, Cardiff.

Wales.—Aug. 30.—For erection at Penlan Farm, near Cardigan, of a ten-stalled cowhouse, with hay room and piggeries, and for the re-flooring and re-roofing of a granary. Mr. J. Williams, Kilgerran, and Mr. W. E. Yorward-James, Caemorgan, Cardigan.

Wales.—Sept. 2.—For alteration of business premises, Corner House, Cardigan. Mr. J. T. J. Williams, architect, Napier Street, Cardigan.

Wales.—Sept. 5.—For alterations and additions to the Great Western Passenger Station, Abertillery, Mon. The Engineer, Newport Station, Mon.

Wanstead.—Aug. 31.—For the construction of detritus and septic tanks, engine house, office and store, rectangular bacteria beds with engine houses, storm water tanks, and other incidental works, for the Urban District Council. Deposit £5 5*s*. Messrs. Willcox, Raikes & Reed, engineers, 63 Temple Row, Birmingham, or the Farm Manager's House, 68 Empress Avenue, Manor Park, E.

Warmley.—Sept. 6.—For the re-building of Cowhorn Hill Bridge, near Warmley, and the construction of improved approaches thereto, for the Gloucestershire County Council. Deposit £2 2*s*. Mr. E. S. Sinnott, M.I.C.E., County Surveyor, Shire Hall, Gloucester.

Warminster.—Aug. 30.—For building a cottage on Imber Road. Mr. A. F. Long, architect, 53 Market Place, Warminster.

Warrington.—Sept. 1.—For the following work, &c., for the Evelyn Street Council school, for the Education Committee, viz.:—Electric lighting, painting, fireplaces, door furniture, wrought iron railings and gates, douche bath fittings. Mr. T. A. Buttery, L.R.I.B.A., architect, Exchange Buildings, Queen Street, Morley.

Warwick.—Aug. 30.—For erection of a pair of children's homes and appurtenant buildings to accommodate 30 children and staff at Warwick, for the Guardians. Deposit £2 2*s*. Mr. F. G. Cundall, M.S.A., architect, 4 Parade, Leamington Spa.

Watford.—Sept. 5.—For erection of a bandstand in Cassiobury Park. Mr. D. Waterhouse, engineer and surveyor, Council Offices, High Street, Watford.

Worksop.—Aug. 28.—For erection of children's wards, also extension of adult males' ward and new kitchens, &c., at the Victoria Hospital. Deposit £2 2*s*. Mr. A. H. Richardson, architect, Market Place, Worksop.

A Local Government Board inquiry was conducted last week at the Wallasey Public Offices into applications by the Corporation for the approval of the Board of the retention and use of public walks and pleasure grounds of certain lands adjoining Virginia Road and the Marine Promenade, New Brighton, acquired for purposes of a promenade. Powers were also sought to borrow £9,000 for the purposes of the construction of the same, which will include the provision of a pavilion, bandstand, shelters, conveniences, &c. The scheme was strongly opposed by a local pier company.

TENDERS.

ANSTEY.

For erection of Council school at Anstey, Leicestershire. Mr. A. H. Hind, A.R.I.B.A., architect, Leicester.

Toone & Warrington	£2,365	16	11
Toone & Sons	2,154	9	0
Simons	2,119	0	0
Shipman	2,097	12	6
Stanger	2,073	0	0
Sleath	2,016	0	0
Chapman, Leicester (*accepted conditionally*)	1,999	0	0

CHESTERFIELD.

For erection of a cottage, stable, &c.

Wright	£654	15	0
Brailsford	653	18	0
Keeley	650	0	0
Collis & Sons	638	0	0
Kirk	590	0	0
Holmes & Sons	570	0	0
Tomlinson	556	0	0
Brown	554	0	0
Marsden Bros.	520	3	5
Wheatcroft, Chesterfield (*accepted*)	515	18	1

CLOWN.

For the construction of waterworks, for the Clown Rural District Council. Messrs. G. & F. W. Hodson, M.I.C.E., F.G.S., engineers, Loughborough.

Pethick, Dick & Co.	£47,349	0	0
Mowlem & Co.	43,683	0	0
Smart	41,381	0	0
Holme & King	39,584	3	4
Bell & Sons	39,548	0	0
Chamberlain	37,545	0	0
Coles	37,500	0	0
Airds, Ltd.	37,036	10	0
Riley	36,599	5	8
Ward & Tetley	35,982	8	0
Bushley & Sons	35,323	5	7
Moss & Sons	35,000	0	0
Parker & Sharpe	34,241	19	0
Ashley, Mansfield (*accepted*)	33,948	16	0
Johnson Bros.	33,638	8	0
Crawford Bros.	33,600	0	0
Lane Bros.	32,518	17	6
Engineers' estimate	35,500	0	0

HALLING.

For the laying of sewers and the construction of purification works, &c., in connection with the Halling Sewerage Scheme, for the Street Rural Council. Mr. A. J. Martin, M.I.C.E., F.G.S., engineer, 7 Victoria Street, Westminster.

Wilson	£10,160	0	0
Price	9,845	0	0
Ford	9,595	0	0
Crawford & Sons	9,262	8	2
Fry Bros.	8,466	9	1
Pedrette	8,417	3	7
Airds, Ltd.	8,414	14	1
Kemp Bros.	8,379	0	0
Bell & Sons	8,066	0	0
Wood & Sons	7,888	17	3
Burrows	7,699	0	0
Davies & Co.	7,664	11	7
Wilson, Border & Co.	7,601	0	0
Paramors, Ltd.	7,484	4	3
Wilson & Co.	7,393	8	6
Hardy & Co.	7,283	0	0

Amended tender.

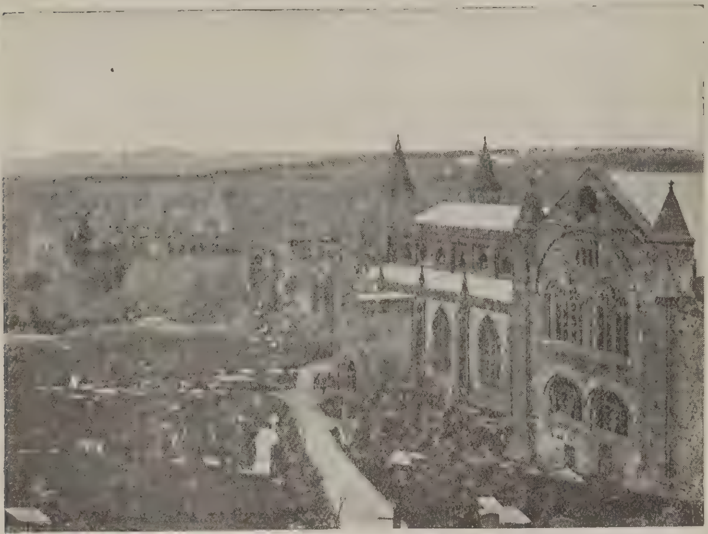
Hardy & Co., Woking (*accepted*)	7,315	5	10

HITCHIN.

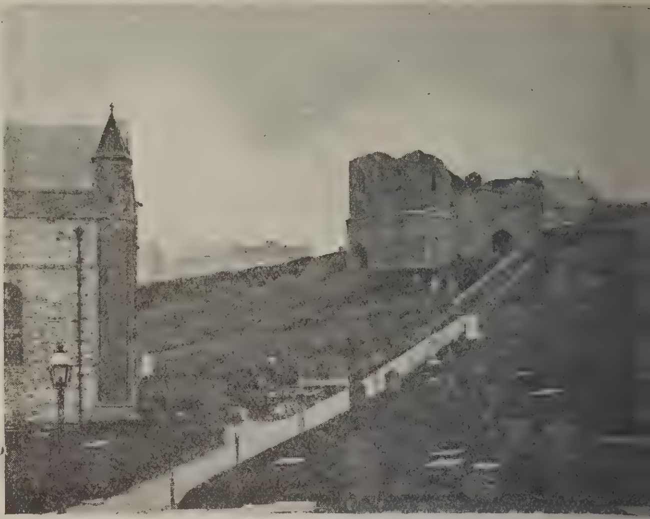
For work at the Wesleyan Church, Brand Street. Messrs. G. Baines & Son, architects, 5 Clement's Inn, Strand, W.C.

Willmot & Sons	£437	10	0
Tawton	410	0	0
Foster & Co. (*accepted*)	408	0	0

(*Continued on page* 14.)



ST. DAVIDS CATHEDRAL AND BISHOP'S PALACE, LOOKING WEST.



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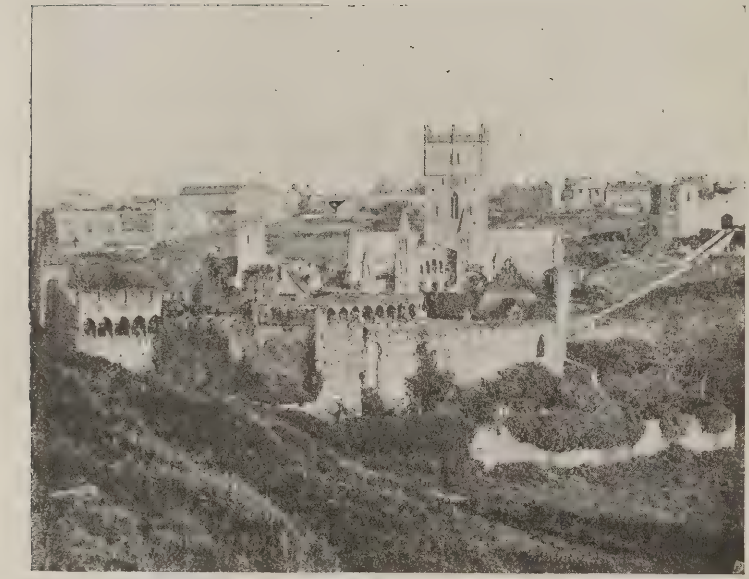
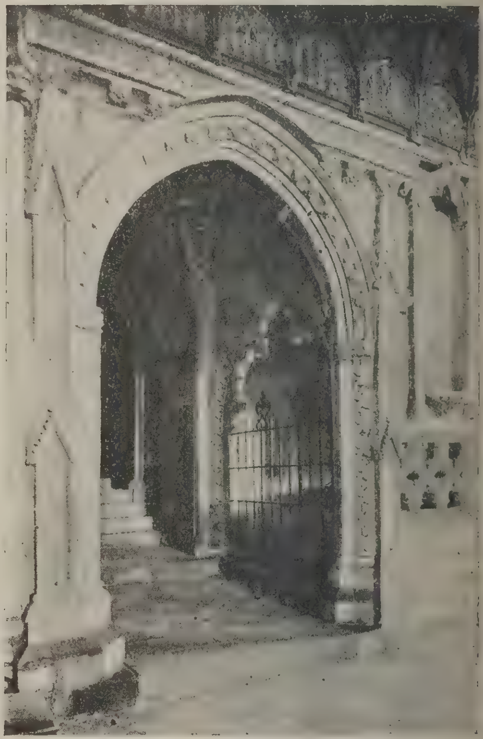
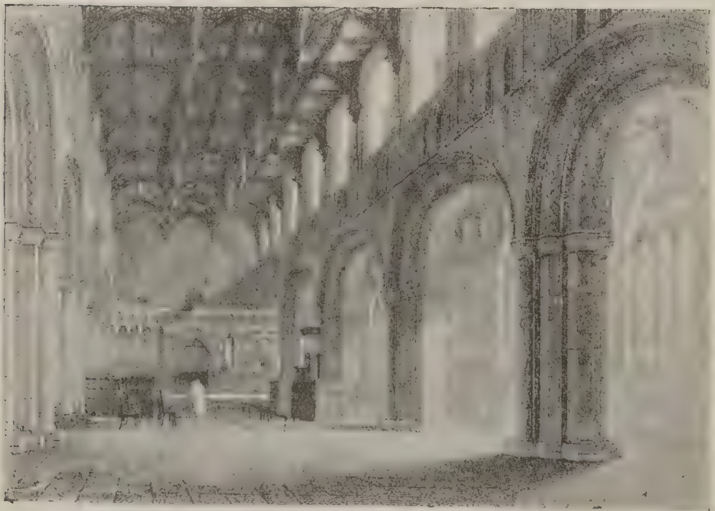


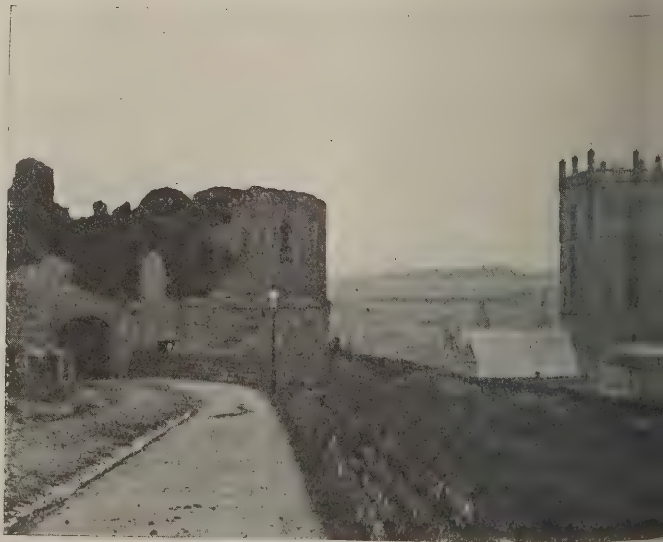
ST. DAVIDS CATHEDRAL AND BISHOP'S PALACE, LOOKING EAST.



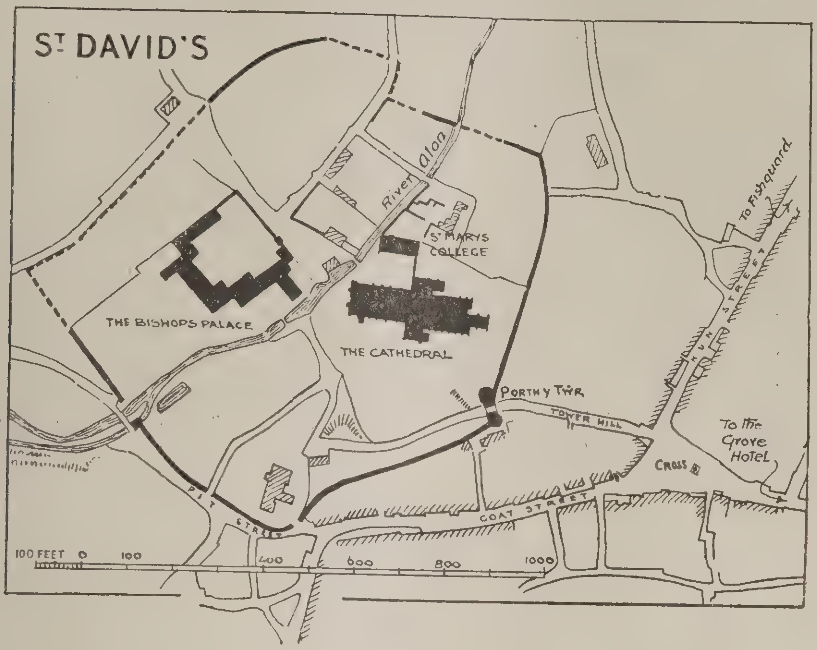
ENTRANCE TO CHOIR, ST. DAVIDS.

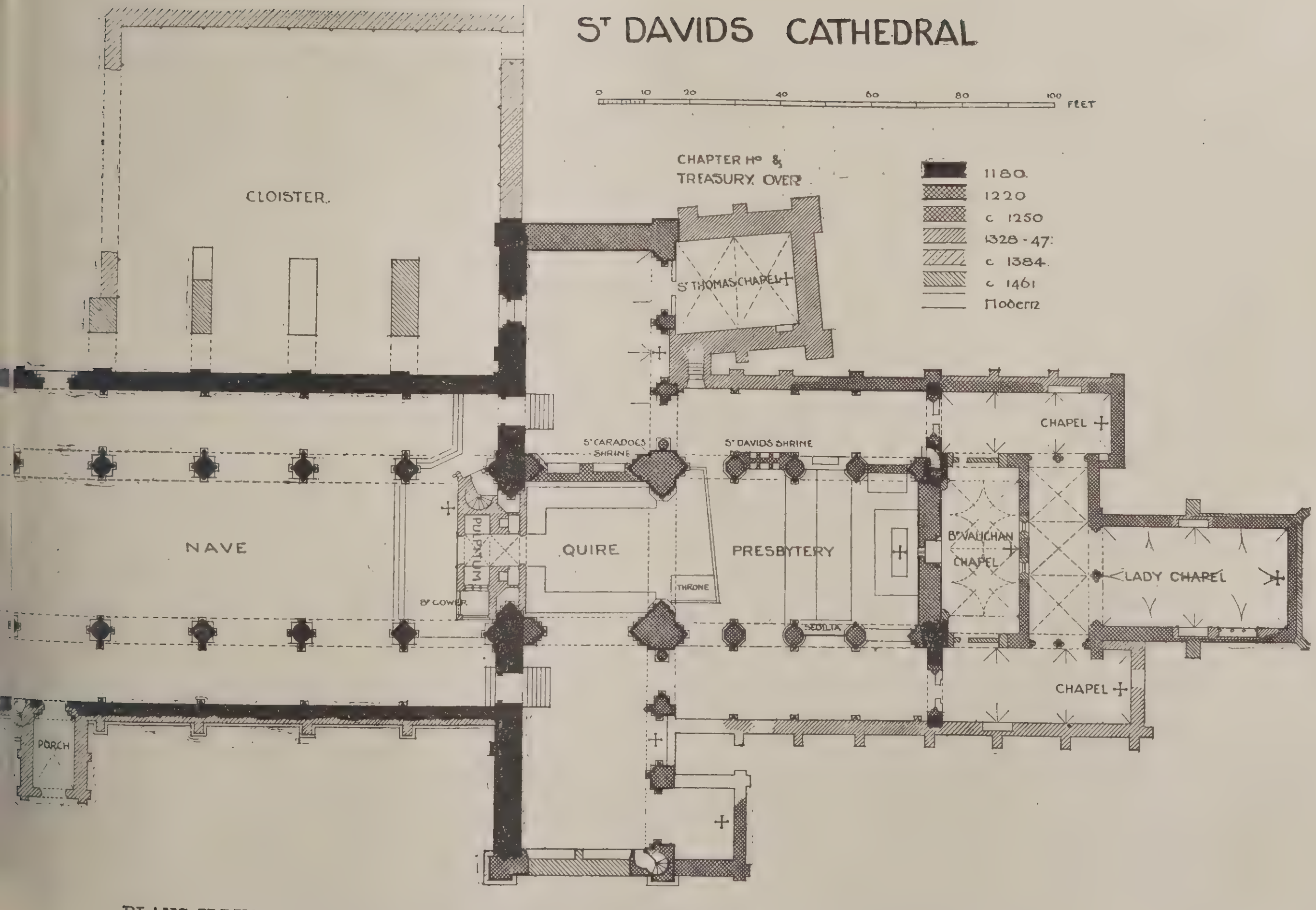


THE NAVE, LOOKING EAST, ST. DAVIDS. (From an old Print.)



TOWER ARCHWAY, ST. DAVIDS.





PLANS ILLUSTRATING EXCURSION OF ROYAL ARCHÆOLOGICAL INSTITUTE. (See p. 104.)

LONDON.

For the erection of a police station at Streatham. Mr. J. DIXON BUTLER, F.R.I.B.A., architect and surveyor to the Metropolitan Police, New Scotland Yard, S.W.

Barker & Sons	£12,672	0	0
Rice & Son	12,291	0	0
Chessum & Sons	11,858	0	0
Lorden & Son	11,842	0	0
Appleby & Sons	11,730	0	0
Ansell	11,678	0	0
Kilby & Gayford	11,686	0	0
Grover & Son	11,492	0	0
Prestige & Co.	11,490	0	0
Mowlem & Co.	11,490	0	0
F. & H. F. Higgs	11,451	0	0
Smith & Sons	10,949	0	0
Sabey & Son	10,753	0	0
Patman & Fotheringham	10,738	0	0
Godson & Sons	10,627	0	0

For repairs, cleansing, painting, &c., to (1) infirmary, (2) workhouse, (3) offices, (4) schools, at Isleworth, for the Guardians of Brentford Union.

Messom & Sons	£3,912	0	0
F. & H. F. Higgs	2,984	0	0
Dorey & Co.	2,917	0	0
Jarman & Co.	2,735	0	0
Strong & Co.	2,718	0	0
Inns	2,225	12	3
Brown & Sons	2,214	8	3
PROCTOR & SONS, Plumstead (*accepted*)	2,088	2	0

MARKET HARBOROUGH.

For erection of new junior Council school, for Leicestershire County Council. Mr. ERNEST G. FOWLER, architect and surveyor, Leicester.

Hickman & Sons	£1,199	0	0
Jarman & Sons	1,165	10	0
Bradford	1,145	0	0
Fox	1,139	10	0
CHAPMAN, Leicester (*accepted*)	1,093	0	0

MARKYATE.

For sewerage and sewage disposal works for the parish of Markyate, Herts., for the Hemel Hempstead Rural District Council. Messrs. ELLIOTT & BROWN, engineers, Nottingham.

Exors. of J. Arundel	£4,711	19	0
Dickson	4,359	15	2
Pedrette	4,341	10	0
Muirhead & Co.	4,190	0	0
Jackson	4,104	17	0
Drever	3,816	0	0
Crawford & Co.	3,809	7	6
Bell & Sons	3,766	0	0
Price & Co.	3,746	0	0
Hopper	3,700	0	0
Morley & Sons	3,631	10	0
Wilmott	3,584	0	0
Lane Bros.	3,569	14	0
Williams	3,480	3	0
Thompson & Co. (G. Powdrill & Son, Ltd.)	3,439	0	0
Buckley	3,279	0	0
WILSON & Co., Dunstable (*accepted*)	3,230	0	0

MERTON.

For erection of additional offices. Mr. G. JERRAM, borough surveyor, Merton.

Lawrence	£1,354	10	0
Wood & Sons	1,145	0	0
Peddle	1,130	0	0
Hann	1,113	0	0
Sullock & Sons	1,100	0	0
Love & Co.	1,091	0	0
Holloway	1,072	0	0
Burges & Sons	1,067	0	0
Godwin	1,005	8	0
F. & G. Foster	998	0	0
Smith & Sons	968	0	0
PASTERFIELD & ENGLISH, Streatham (*accepted*)	932	0	0

OSWESTRY.

For erection of ten almshouses and all work in connectio therewith, Arundel Road. Mr. G. W. LACEY, boroug engineer and surveyor.

Felton	£1,598	0	
Huxley	1,550	0	
Higgins	1,500	0	
Thomas & Sons	1,475	0	
Roe	1,448	10	
Jones & Evans	1,406	13	
VAUGHAN, Oswestry (*accepted*)	1,398	0	
Griffiths & Son	1,350	0	
Borough Surveyor's estimate	1,513	0	

SCUNTHORPE.

For erection of a Council school for the Lindsey Count Council. Messrs. SCORER & GAMBLE, architects, Lincoln.

Jackson & Son	£14,173	0	
Bowman & Sons	13,860	0	
S. & R. Horton	13,398	3	
Harper	12,600	0	
Pattinson & Sons	12,443	0	
Thompson	12,400	0	
Hickman & Sons	12,374	0	
Unwin	12,260	0	
Bosworth & Lowe	12,240	0	
Wilkinson & Houghton	11,845	12	
Evans	11,795	0	
Corah & Sons	11,742	0	
Bradford	11,585	0	
Maxey & Sons	11,545	0	
GILL & SONS, Doncaster (*accepted*)	11,117	0	

WEYMOUTH.

For erection of a secondary school. Messrs. CRICKMAY SONS, architects, Weymouth and Westminster.

Trask & Sons	£7,298	15	
Jesty & Baker	6,750	10	
Playfair & Toole	6,447	0	
Parsons & Co.	6,253	15	
Conway	6,248	0	
Wort & Way	6,247	10	
Wakeham Bros.	6,188	0	
Jenkins & Sons	5,775	0	
Pittard & Sons	5,649	0	
Gough	5,357	0	

THE Chatham Education Committee have given noti of their intention to provide a public elementary school f about 1,000 children in Ordnance Street.

THE Fylde Board of Guardians have appointed Mr. Harrison (of Messrs. Haywood & Harrison, Lytham) architect for the suggested cottage homes in lieu of t existing Children's Home.

THE Glamorgan County Council have given notice of th intention to erect schools at Aber Kenfig (150 childre Cilfrew (200 children), and Cwrt Sart, Briton Ferry (7 children); also additions at Kenfig Hill school (150 childre and Nantymoel (120 children).

FURTHER extensions at the Western Infirmary, Glasgo involving an outlay of £80,000, are contemplated in t near future. At present nearly three-quarters of that su has been received.

A NEW pulpit has been provided in the parish chur Thrapston, as a memorial to the late King Edward. It w designed by Mr. T. G. Jackson, R.A., and Messrs. Farm & Brindley carried out the carving.

THE Lichfield Rural District Council have adopted scheme prepared by Mr. Robert Green, M.Inst.C.E., Birmingham, for the sewerage and sewage disposal of t parish of Shenstone. Sanction to a loan of £10,139 carrying out the works will be applied for from the Lo Government Board.

THE Hampshire County Council have decided to purch a piece of land containing about three acres, adjoini Sholing Girl and Infants' School, for £800, as a site fo new Council School; to spend a sum not exceeding £510 the erection of a new class room, store, and corridor Sholing Infants' Council School; and to spend a sum exceeding £350 on the provision of a cloakroom, exit, la tory, and corridor at Ludlow Road School.

BUILDING PROGRESS IN THE PROVINCES.

LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

.B.—Local authorities, architects and others are invited to submit full particulars to Room 6, Imperial Buildings, Ludgate Circus, for insertion in this weekly list.)

ENGLAND.

CKINGHAMSHIRE.

Bradwell.—Schools to accommodate 1,074 children. Mr. C. H. Riley, Education Committee Architect.

ESHIRE.

Dale Head.—Reservoir for the Fylde (£2,000,000).

Macclesfield.—Infirmary renovation. Messrs. Hill & Dixon, contractors.

St. George's Church School improvements and alterations. Mr. Bradwell, architect (£2,000).

Plumpton Wall.—Water supply scheme. Messrs. J. & W. Scott, contractors (£897).

RNWALL.

Burraton.—Eight houses. Mr. W. J. Pearce, architect.

Crantock.—Sewage disposal works.

Falmouth.—Workmen's dwellings.

Helston.—Two houses at Gunwalloe.

Launceston.—Generating station for the Launceston and District Electric Supply Co.

St. Agnes.—Shop in Vicarage Road. Messrs. R. H. & E. W. Tonkin, architects.

Truro.—Royal Cornwall Infirmary Optics Department.

MBERLAND.

Bolton Fell End.—Water supply scheme.

Dacre.—Stained-glass windows and an eagle lectern in the parish church. (The J. E. Hasell Memorial.)

Kirkby Ireleth.—Stained-glass window in the parish church.

RBYSHIRE.

Ilkeston.—Elementary school. Mr. H. Tatham, architect.

ONSHIRE.

Newton Abbot.—Swimming bath.

EX.

Bocking.—Cottages in Church Street.

Water supply scheme (£7,800).

Burnham.—R. C. Church in Chapel Road.

Dovercourt.—Ninety houses.

Frinton-on-Sea.—Free church.

Harlow.—Six cottages in Broad Street (£900).

Harold Wood.—Convalescent Home extension. Mr. Fryd, contractor (£1,695).

Hornchurch (South).—Elementary school. Mr. A. S. Ley, architect.

Maldon.—Police Station. Mr. F. Whitmore, County Architect.

North Weald.—Sewerage scheme (£5,300).

T.

Dartford.—Weights and Measures Office, Kent Road. Mr. F. W. Ruck, County Architect. Mr. W. F. Blay, contractor.

Harrietsham.—Baths for Working Men's Club.

Valmer.—Sewerage scheme (£12,000).

Villesborough.—Council schools.

COLNSHIRE.

Gainsborough.—Twenty-one workmen's cottages. Mr. J. Thropp, M.I.C.E., County Surveyor (£4,400).

incoln.—Parish Church of St. Botolph; tower restoration. Messrs. Scorer (A.R.I.B.A.) & Gamble, architects.

Vainfleet All Saints.—Water supply scheme (£700).

DLESEX.

cton.—Public Slaughter-house. Council Surveyor.

aling.—Wesleyan Methodist Church at Brentham.

FOLK.

lakeney.—St. Nicholas Church restoration, furniture, &c. (£2,000).

riston.—Congregational Church.

uestwick.—Congregational Church.

est Runton.—Parish Church: stained glass (Eden memorial) window.

THAMPTONSHIRE.

Vellingborough.—Council school.

THUMBERLAND.

raghead.—Thirty-two houses. Mr. J. W. Rounthwaite, A.R.I.B.A., architect.

ewcastle.—Hospital extensions (£18,000).

RDSHIRE.

anbury.—Artisans' dwellings.

SOMERSETSHIRE.

Long Sutton.—Water supply scheme.

Winsley.—Sanatorium extension.

SUFFOLK.

Lowestoft.—Lunatic asylum.

YORKSHIRE.

Beverley.—Norwood Cattle Market improvements. Mr. J. Gould Smith, A.M.I.C.E., Borough Surveyor (£600).

St. Mary's (new) school.

Catterick.—Almshouses alterations.

Delph.—Villa. Messrs. J. B. Abbey & Son, architects.

Dringhouses.—Cottage.

Howdenshire.—Water supply scheme.

Keighley.—School at Highfield. Mr. A. P. Harrison, architect.

Malton.—Workhouse laundry. Mr. C. H. Channon, F.R.I.B.A., architect (£700).

Mold Green.—Thirty-eight tenement blocks.

WALES.

Abergele.—Sanatorium for consumptives for the Manchester Board of Guardians.

Denbigh.—Market, Town Hall and Municipal Buildings (£18,000).

Llanganhafal.—Water supply scheme.

Llanrhaiadr, Saron and Prion.—Water supply scheme (£3,000).

Ruthin.—Infirmary.

Saron.—(See above.)

SCOTLAND.

Aberdeen.—Carnegie Dunfermline Trust bowls-house for South town bowling green.

Broadford.—Mackinnon Memorial Hospital. Mr. W. L. Carruthers, F.R.I.B.A., architect.

Buckie.—House additions at Fondochty. Mr. W. Hendry, architect. Separate contracts for the various trades.

New steading and house alterations at Greenhaig Farm. Mr. W. Hendry, architect.

Connel.—Villa.

Falls of Lora Hotel: rebuilding.

Culter.—Parish Church: memorial window and electric light installation.

Dingwall.—Slaughter-house repairs and extension (£600).

Dunfermline.—Drill hall in Elgin Street (£3,000).

Ellon.—Parish Church hall (£1,200). Mr. W. Davidson, architect. Separate contractors for the various trades.

Fort William.—Public Mortuary.

Glasgow.—Houses in Gallowgate and Graham Square.

General Post Office extension.

Kingseat.—Asylum farm steading. Separate contractors for the various trades.

Kingussie.—Golf club house (£500).

Lismore.—Public Hall.

Prinlaws.—Parish Church extension.

Wemyss.—Baptist Church.

School Board Infant School, College Street.

Yoker.—Parish Church hall (accommodation for 600). Mr. H. D. Walton, architect (£1,800).

TRADE NOTES.

Under the direction of the Norfolk Education Committee, Boyle's latest patent "air-pump" ventilators have been applied to North Lopham schools.

Messrs. Patman & Fotheringham, Ltd., have been successful in securing contracts for two works of importance in the West End of London, viz., alterations and additions to His Majesty's Theatre, Haymarket, W., and additions and alterations to the Savoy Theatre, Strand, W.C.

Messrs. William Potts & Sons, Ltd., clock manufacturers, Leeds and Newcastle-on-Tyne, have received instructions to make and fix a new hour striking clock and bell, with four external dials, for Scotland. Also an hour striking clock with three dials for the Grammar School, Ashburton, Devon; new illuminated clock with two external dials for Huddersfield; fix two clocks in Lincolnshire; new clocks for North Yorkshire and co. Durham, with Cambridge chimes; new clock and bell for Scarborough; new large clock to strike on a 20 cwt. bell, with three large dials, for St. Paul's Church, Colwyn Bay, North Wales; also just finishing a Cambridge quarter-chime clock for St. Oswald's parish church, Guiseley, West Yorkshire, and other important work in hand. The clocks are generally on the plans laid down by the late Lord Grimthorpe.

THE "MAZDA" LAMP.

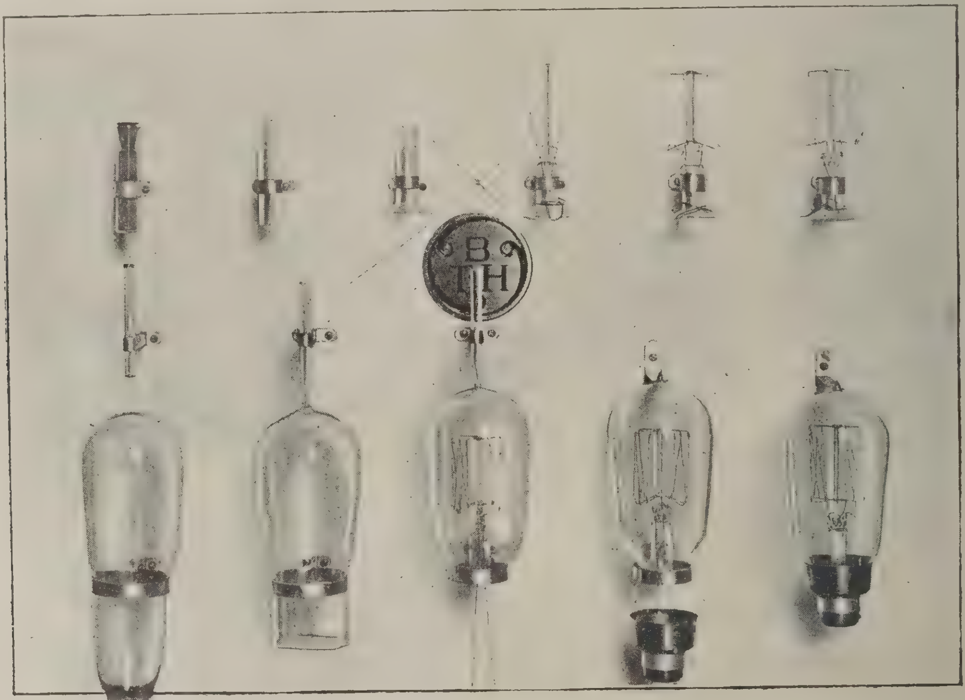
Although only a comparatively short period has elapsed since the introduction of the metallic filament lamp, with its attendant advantages to electric-light consumers over the older type of carbon lamp, it would appear that important developments have matured as the result of research and experiment on the part of the British Thomson-Houston Company, Ltd., at their laboratory.

The firm purpose placing on the market a new type of their metallic filament lamp called the "Mazda." It is well known that the tungsten filament lamps at present in use are not able to withstand ordinary rough usage. This difficulty has been overcome in the development of the "Mazda" by the method of constructing the filament of pure drawn wire, which is superior to the pressed or *squirted* filament in exactly those essentials which are necessary to the most perfect type of electric incandescent lamp. Great ingenuity had hitherto been expended to improve the pressed tungsten filament of the lamps now in use, in order to obtain the desired strength, uniformity in cross-section, and flexibility in mounting, but without success.

The introduction of the drawn-wire method of "Mazda" lamps therefore heralds a great advance, inasmuch as these lamps are proved to be several times stronger than the pressed-filament type at any point in their life. The risk of breakage is substantially reduced and longer life is ensured. In support of this contention, it is necessary to compare "Mazda" filaments and their construction with those of the "pressed" type.

It is important to note that the drawn wire is of one piece; thus it is not subject to the variations in size and consequent shortening of life which are apt to occur with the ordinary or pressed-filament lamps which have many loops in series. An incandescent-lamp filament, like a chain, is obviously only as good as its weakest part. In "Mazda" lamps there is no weak link. For in the "Mazda" the ends of drawn-wire filaments are not narrow and pointed, but well rounded, to prevent short circuits. Early failures are said to be less frequent. An important item to consumers when purchasing "Mazda" (British-made) lamps is that they are rated by the British Parliamentary Standard candle, which should not be confused with the Hefner (a lower) standard used in the rating of Continental lamps. It is not without interest, when contemplating the cost of electric light at the present day, to go back to 1882, when the first incandescent lamps were made. The best lamps then obtainable gave 16 candle-power and consumed 100 watts of electricity per hour. Reckoning the cost at 6*d.* per unit, this would work out at one halfpenny per hour. The "Mazda" 16 candle-power can be secured from 20 watts (one-fifth of what the lamps first required), at a cost of one-tenth of a penny. The cost of electricity per unit is now, of course, much less than 6*d.*, that figure being quoted solely for the purpose of illustration. By the use of th Mazda-Holophane unit, increased illumination to the extent of 100 to 150 per cent. can be obtained than if the lamp were used alone or with ordinary glass shades. The Mazda-Holophane unit is a combination of the "Mazda" lamp with a special type of prismatic glass reflector known as the Holophane. Rooms so lighted present practically the same appearance as by daylight, an obvious advantage for shops restaurants, warehouses, banks, clubs, and places where people congregate.

Our block shows the successive stages of evolution whic occur in the delicate operation of producing a "Mazda" lamp. Two pieces of the new drawn tungsten wire filamen which promises to play such an important part in the electr light of the future will be noticed crossed in the centre. may here be mentioned that the British Thomson-Houst Company, Ltd., is a British concern which now employs m than 3,000 people, a number six times as many as were quired when their Rugby factory was opened in 1901.



A "MAZDA" LAMP IN THE MAKING.

The Governors of the Glasgow School of Art, authoris by the Scotch Education Department, have granted travelling bursaries of the aggregate value of £325. T winners of the two bursaries awarded in the architectu section are Mr. James Bennett and Mr. Alfred G. Lo head. Each is of the value of £25.

Dunfermline Dean of Guild Court last week sanction the erection of properties estimated to cost in the aggreg £15,000. Among the plans were those by the Carnegie Du fermline Trustees for the erection in Bath Street of a wome institute, the cost of which is expected to reach betw £8,000 and £9,000, and for the erection by the Fife Cou Territorial Association of a drill hall for the Highland F Royal Garrison Artillery, at a cost of £3,000. The Carne Trustees obtained warrant to erect, at a cost of £650, a bo house for the bowling green which they are at present layi out in Nethertown Broad Street. Other plans passed were: David Hutton, merchant, for the reconstruction of Masonic Arms, Townhill; Alexander Hutton, spi merchant, Townhill, for the erection of a cottage on bu land in the village; George Anderson, joiner, Townhill Ro for the erection of dwelling-houses at Townhill Road; Jo Rintoul, merchant, for the erection of two three-sto dwelling-houses at Baldridgeburn; and the Townhill (Du fermline) Colliery, Ltd., to erect a motor-house, worksho sub-station for electricity transformer, &c., at their colli at Townhill.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

COMPETITIONS OPEN.

ATHENS.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l.* A first prize of 800*l.*, and a second prize of 320*l.* will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

AUSTRALIA.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

BARNSLEY.—Oct. 7.—The Town Council invite competitive drawings for a proposed extension of public baths, including a swimming bath, Russian and vapour baths, and slipper baths, in connection with the existing public baths in York Street and Race Street, Barnsley. The Town Council offer premiums of £50, £30 and £20. Mr. J. H. Taylor, M.I.C.E., borough surveyor, Manor House, Barnsley.

BRISTOL.—Oct. 31.—The Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

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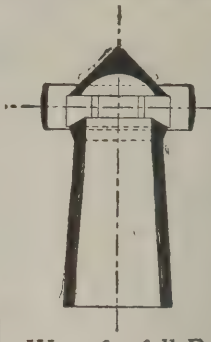

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Coseley.—Oct. 12.—Plans for school for 200 children for the Education Committee, at Dimmock Street, Parkfield, Coseley, W. Dudley. Conditions, one guinea, returnable on receipt of plans. Mr. Fred J. C. Poole, Secretary, Education Offices, Coseley, near Bilston.

Evesham.—Oct. 7.—The Rural District Council invite designs, with estimates of cost, for laying out a building site at Broadway and the erection thereon of 30 cottages, under the Housing and Town Planning Act, 1909. The architect whose design is accepted will be appointed to carry out the work at an inclusive fee of 5 per cent. Deposit £1 1*s.* Mr. E. H. Wadams, Clerk, Union Offices, Evesham.

Hastings.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1*s.* deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

London.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1*s.*, which will be refunded on receipt of a bona-fide design or return of conditions within one month of receipt. All particulars from Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

Murton.—Oct. 4.—The Easington Rural District Council nvite plans for three separate types of houses, of which it s proposed to build 100 at Murton Colliery, Durham. The houses to be in streets of twenty with 16 ft. back streets, 18 ft. frontage, and garden ground in front of each house to a depth of 30 ft., an earth closet and outside pantry to be provided for each house. Strict compliance with the Council's by-laws and the Local Government Board regulations will be required. The following are the types of houses:—Type A.—28 ft. gable, three bedrooms, one living room, one sitting room, scullery (offshot), with kitchen range and bath. Type B.—25 ft. gable, three bedrooms, one living room, scullery, with kitchen range and bath. Type C.—Two bedrooms, one living room and scullery, with kitchen range and bath. Appearance and economy of structure will be considered. The successful candidate will receive 2½ per ent. commission upon the net cost of buildings when erected. No other remuneration will be paid. Mr. J. M. Longden, Council Offices, Easington, Castle Eden.

Newcastle-upon-Tyne.—The Education Committee nvite competitive plans from architects practising in Newcastle for a Senior Mixed School and a Junior Mixed School, each to accommodate 365 children, at Walker Gate. Mr. Spurley Hey, secretary, Education Offices, Northumberland Road, Newcastle-upon-Tyne.

Pontefract.—Sept. 9.—The Council of the Borough invite competitive designs from architects practising in the West Riding of Yorkshire for the erection of public swimming and other baths at a cost not to exceed £4,500. Pariculars and conditions as to the nature of the buildings, the emuneration of the successful architect, and the premiums or the designs adjudged to be first and second, can be btained of the Borough Surveyor, Municipal Offices, Ponteract.

Uruguay.—Jan. 30.—The Ministry of Public Works nvite competitive plans for a town-improvement scheme nd for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for he former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial ntelligence Branch of the Board of Trade, 73 Basinghall treet, London, E.C.

Wales.—The Cardiff Education Committee invite designs nd estimates in competition for a technical institute proosed to be erected in Cathays Park. Mr. J. S. Gibson, rchitect, will act as assessor. Full particulars will be sent o architects on application, accompanied by a deposit of £2 2*s.*, which will be returned to all architects submitting ona-fide designs or who return the conditions within six eeks. Mr. J. Jackson, director of education, Education ffices, City Hall, Cardiff.

Wales.—Sept. 6.—The Committee of Visitors of the oint Counties Lunatic Asylum, Carmarthen, are contemlating various repairs and alterations to the existing sylum, together with the erection of additional buildings, nd architects are invited to submit full particulars of their terms and previous experience of asylum work, together with copies of testimonials, to Mr. W. J. Wallis-Jones, clerk to the Visitors, 34 Quay Street, Carmarthen.

CONTRACTS OPEN.

Addington.—Sept. 8.—For the builders' work necessary in erection of additions to coal store at Addington waterworks, for the Croydon Town Council. Deposit £1 1*s.* The Borough Engineer, Town Hall, Croydon.

Adwick-le-Street.—Sept. 9.—The West Riding Standing Joint Committee invite whole or separate tenders for the following works:—Erection of police station at Adwick-le-Street. near Doncaster (builder, joiner, plasterer, plumber, roof tiler, painter). Mr. J. Vickers Edwards, West Riding architect, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Aldershot.—Sept. 12.—For alterations and additions to the Royal Pavilion, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s.* H.M. Office of Works, &c., Storey's Gate, S.W.

Barrow-in-Furness.—For erection of four houses and two houses and shops at the corner of Risedale Road and Cambridge Street. Mr. P. H. Fisher, 192 Salthouse Road, Barrow-in-Furness.

Barrow-in-Furness.—Sept. 4.—For building of new offices in the Engineering Department of Naval Construction Works. Deposit £2 2*s.* Vickers, Ltd., Naval Construction Works, Barrow-in-Furness.

Barrow-in-Furness.—Sept. 15.—For the extension of Barrow-in-Furness Post Office, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s.* The Postmaster, Barrow-in-Furness, or the Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

Bawnboy (Ireland).—Sept. 22.—For erection and fencing of 45 single labourers' cottages at Bawnboy. Mr. Townsend, architect, Carrickboy, Ballyshannon.

Berwick-on-Tweed.—Sept. 7.—For the re-building of that part of the Salmon Hotel facing the High Street. Messrs. Gray & Boyd, architects, 2 Ivy Place, Berwick-on-Tweed.

Bradford.—Sept. 4.—For work required in erection of branch library, Great Horton. The City Architect, Town Hall, Bradford.

Bradford.—Sept. 21.—For the construction of a chimney shaft 200 feet high, built of brickwork, with a sandstone masonry face, at the Esholt Sewage Disposal Works. Deposit £1 1*s.* Mr. J. Garfield, A.M.I.C.E., Esholt Hall, near Shipley (station, Apperley Bridge, Midland Railway).

Bridgwater.—Sept. 11.—For the various works in connection with the enlargement and alteration of the cloakroom and latrine accommodation in the girls' department, Albert Street Council School. The Borough Surveyor, Municipal Buildings, Bridgwater.

Bridgwater.—Sept. 12.—For various repairs, slight alterations, painting, and renovation of various rooms and apartments in connection with the Town Hall and Municipal Buildings. The Borough Surveyor, Municipal Buildings.

Castleford.—Sept. 8.—The West Riding Education Committee invite whole or separate tenders for the following work:—Castleford Temple Street Council school alterations (builder, joiner, plumber, and painter). The Education Architect, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Catterick.—Sept. 6.—For new Wesleyan Chapel, Catterick, Yorks. Mr. H. Howarth, architect, 20 Greenbank Road, Darlington.

Chandlersford.—For completion of four houses on the Hiltingbury Estate. The Estate Office, Chandlersford.

Dover.—Sept. 16.—For erection of a girls' school at Barton Road. Deposit £2 2*s.* Borough Engineer, Mr. W. C. Hawke, A.M.I.C.E., Maison Dieu House, Biggin Street, Dover.

Ellesmere Port.—Sept. 13.—The West Cheshire Water Co. invite designs and tenders for erection at Ellesmere Port of a ferro-concrete water tower. Capacity, 200,000 gallons. Mr. Isaac Carr, M.I.C.E., Farnworth, Widnes.

Ellesmere Port (Cheshire).—Sept. 21.—For new elementary school at John Street (accommodation 450), for Bebington and Neston area. Deposit £1 1*s.* Apply after Sept. 9 to Messrs. Deacon & Horsburgh, architects, 12 St. George's Crescent, Liverpool.

Glasgow.—Sept. 25.—For the extension of Glasgow General Post Office, for the Commissioners of H.M. Works and Public Buildings. Tenders are required for the whole work and not for separate trades. Deposit £1 1*s.* His

Majesty's Office of Works, General Post Office, Glasgow, and H.M. Office of Works, 3 Parliament Square, Edinburgh.

Grays.—Sept. 4.—For the erection of two cottages at the Stifford Homes, near Grays, Essex, for the Stepney Union. Send names and £2 2*s*. deposit by Sept. 4 to Mr. T. G. Stacey, clerk, Union Offices, Barnes Street, Stepney, E.

Grays.—Sept. 6.—For erection of drill hall, instructor's quarters, stores, &c., at Grays, for the Territorial Force Association, Essex County. Send in applications and £2 2*s*. deposit before September 6 to Colonel F. F. Johnson, C.B., secretary, Bank Chambers, Chelmsford.

Heaton.—Sept. 4.—For whole or separate trades in erection of new church, Heaton, Bolton. Messrs. Austin & Paley, architects, Lancaster.

Hockley (Birmingham).—Sept. 5.—For erection of a stable at the Great Western Railway Station. The Engineer, Wolverhampton Station.

Ireland.—Sept. 4.—For erection of sixteen artizans' dwellings, on two different sites, for the Carlow Urban District Council. Deposit £2 2*s*. Mr. J. Kelly, town clerk, Town Hall, Carlow.

Ireland.—Sept. 5.—For erection of twenty labourers' single cottages, and fencing plots to same, for the Irvinestown Rural District Council. Mr. T. Aiken, clerk, Board Room, Irvinestown.

Ireland.—Sept. 7.—For erection of nineteen labourers' cottages and fencing same, for the Cork Rural District Council. (Cost not to exceed £150 per cottage.) Deposit 5*s*. Mr. J. Cotter, clerk to the Rural District Council.

Ireland.—Sept. 9.—For supplying and erecting a fountain at New Bridge Street, Downpatrick, similar to existing fountains in Downpatrick, and to lay pipe and connect same with main, for the Downpatrick Rural District Council. Mr. R. L. Morrow, clerk, Downpatrick, Ireland.

Isle of Man.—Sept. 20.—For alterations to the house and premises known as "Murray's House," Mount Havelock, Douglas, for the Committee of Tynwald. Messrs. J. Cowle & Son, Government architects, St. George's Street, Douglas.

Isle of Man.—Sept. 23.—For alterations and additions to the Home for the Poor, Douglas. Deposit £1 1*s*. Messrs. J. Cowle & Son, architects, Douglas.

Keighley.—Sept. 4.—For the various works required in erection of additions to brewery. Messrs. J. Haggas & Sons, architects, North Street, Keighley.

Keighley.—Sept. 8.—For the various works required in erection of additions to laundry, West Lane. Messrs. J. Haggas & Sons, architects, North Street, Keighley.

Kingham.—Sept. 13.—For erection of a school at Kingham, Oxfordshire. Deposit £2 2*s*. Mr. S. Stallard, county surveyor, 9 New Road, Oxford.

Leeds.—Sept. 5.—For the construction of a chimney, 150 feet high, and flue, at the Destructor Works, Kidacre Street. Mr. W. T. Lancashire, M.I.C.E., city engineer, Municipal Buildings, Leeds.

Leeds.—Sept. 11.—For erection of one hostel for women students at the City of Leeds Training College, Beckett's Park, Headingley (Mr. W. Peel Schofield, architect, Park Row, Leeds). Send names and £2 2*s*. deposit at once to Mr. J. Graham, secretary for education, Education Department, Claverley Street, Leeds.

Lingfield.—Oct. 2.—For building new drill hall premises at Lingfield, for the Territorial Force Association of the County of Surrey. Messrs. Jarvis & Richards, architects to the Association, 10 Queen Anne's Gate, Westminster, S.W. Send names and £1 1*s*. deposit by Sept. 15 to Messrs. Robinson & Roods, quantity surveyors, 8 New Court, Carey Street, Lincoln's Inn, W.C.

London.—Sept. 13.—For executing certain repairs and painting works at the casual wards, St. Leonard Street, Bromley-by-Bow, for the Poplar Board of Guardians. Send names and £2 2*s*. deposit by Sept. 1 to Messrs. J. & W. Clarkson, architects, 136 High Street, Poplar, E.

London.—Sept. 18.—For the extension of the offices, 95 The Grove, Stratford, for the West Ham Education Committee. Send names and £5 deposit by Sept. 4 to Mr. W. Jacques, A.R.I.B.A., architect to the Education Committee, 2 Fen Court, Fenchurch Street, E.C.

London.—Sept. 20.—For the erection of lavatory accommodation and shelters at Wormholt Park, Hammersmith, W. Mr. H. Mair, borough surveyor, Town Hall, Hammersmith, W.

Maltby.—Sept. 7.—For completing the builder's portion of the work on the new Council schools at Maltby. Mr. W. A. Millard, The Crags, Maltby, near Rotherham.

Minehead.—Sept. 5.—For the erection of a stable at the Great Western Railway Station. The Engineer, Taunton Station.

Nantwich.—Sept. 16.—For erection of three single dwelling-houses and three sets of farm buildings, on the Sound Estate, near Nantwich, Cheshire. The County Estate Office, 49 Northgate Street, Chester, and at the Estate Office, 137 Nantwich Road, Crewe.

Neston.—Sept. 21.—For new handicraft and cookery centres and alterations to the Council school, Neston, Cheshire, for Bebington and Neston area. Deposit £1 1*s*. Messrs. Deacon & Horsburgh, architects, 12 St. George's Crescent, Liverpool.

Oldham.—Sept. 6.—For supply and delivery at their Rhodes Bank depôt, Mumps Station, Oldham (Lancashire and Yorkshire Railway), of 200 washdown water closets, cisterns and fittings, for the Sanitary Committee. The Borough Surveyor, Oldham.

Oxhill.—Sept. 19.—For building of retaining wall, levelling, and foundations for new iron school at Oxhill, Durham. Mr. N. Richley, Shire Hall, Durham.

Richmond.—Sept. 7.—For erection of a receiving home for children at Parkshot, Richmond, Surrey, for the Guardians. Mr. E. J. Partridge, F.S.I., M.S.A., Bank Chambers, Richmond. Send 5*l*. deposit to Mr. P. Umney, clerk, Parkshot, Richmond.

Romford.—Sept. 6.—For erection of drill hall, instructor's quarters, stores, stabling, &c., at Romford, for the Essex County Territorial Force Association. Send applications and £2 2*s*. deposit before September 6, to Colonel F. F. Johnson, C.B., secretary, Bank Chambers, Chelmsford.

St. Helens.—Sept. 20.—For the erection of an extension of the Thatto Heath Council school, off Elephant Lane. Deposit £1 1*s*. Messrs. Biram & Fletcher, architects, George Street, St. Helens, Lancs.

Salford.—Sept. 7.—For boundary-wall and alterations to building, Broughton Road, Pendleton, for the Corporation. Borough Engineer, Salford.

Sandbach.—Sept. 16.—For erection of one single dwelling-house and one set of farm buildings, on the Moston Estate, near Sandbach, Cheshire. Deposit £1. The County Estate Office, 49 Northgate Street, Chester, and at the Estate Office, 137 Nantwich Road, Crewe.

Scotland.—Sept. 7.—For executing the mason, carpenter, plumber, plaster, slater, painter and glazier works o new school buildings, &c., at Longside. Mr. G. Davidson clerk to the School Board, Longside, or Mr. G. T. Anderson architect, 1 Crown Terrace, Aberdeen.

Scotland.—Sept. 7.—For the mason, carpenter, slater plaster, painter, and iron works of additions to premises i Berryden Road, Aberdeen, for the Northern Co-operativ Co., Ltd. Messrs. Wilsons & Walker, architects, 181a Unio Street, Aberdeen.

Scotland.—Sept. 7.—For mason, joiner, plumber, plaster slater, painter, glazier, asphalter, and heating works of pro posed shops and workrooms at Wellesley Road, Methil, fo Methil Co-operative Society, Ltd. Deposit £1 1*s*. Messrs Kaxton & Walker, architects and ordained surveyors, 3 Hig Street, Leven.

Scotland.—Sept. 9.—For mason, joiner, plumber, slater plaster, and painter work, in connection with the restoratio of Falls of Lora Hotel, Connel Ferry. Mr. J. G. Falconer architect, Alexandra Place, Oban.

Scotland.—Sept. 9.—For mason, joiner, slater, plaste plumber and painter work of four cottages to be erecte by Brechin District Committee of the County Council o Forfarshire at Oathlaw, Fern, Careston, and Dun. Mr. D W. Galloway, architect, Brechin.

Scotland.—Sept. 25.—For the carrying out of the variou works in connection with the provision and construction o a refuse destructor installation for efficiently burning wit out nuisance the refuse of the city, for the Aberdeen Tow Council. Mr. W. Dyack, M.I.C.E., burgh surveyor, Tow House, Aberdeen.

Shardlow.—Sept. 8.—For the provision and completio of new latrines, drainage, &c., at the Workhouse, Shardlow Derby. Mr. J. Sheldon, architect, Derby House, Lon Eaton.

Slaithwaite.—Sept. 4.—For proposed drill hall, Mar chester Road and Nield's Road, Slaithwaite, for the Wes Riding of Yorkshire County Association. Mr. W. Cooper F.R.I.B.A., architect, 4 Kirkgate Buildings, Huddersfiel

Sleaford.—Sept. 9.—For widening bridge, Osbournb Drove, for the Rural District Council. Mr. F. H. Elli district surveyor, Sleaford.

South Kirkby (Yorks).—Sept. 8.—The West Riding Education Committee invite whole or separate tenders for the following works, viz.:—South Kirkby Council School: Alterations and additions (builder, joiner, slater, plumber, plasterer, and painter). The Education Architect, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Stirchley.—Sept. 13.—For the construction of a wooden floor to cover the swimming pond at the public baths, Stirchley, during the winter months, and of a storage shed, for the King's Norton and Northfield Urban District Council. Deposit £1 1s. Mr. A. W. Cross, A.M.I.C.E., 23 Valentine Road, King's Heath.

Sutton (Surrey).—Sept. 9.—For the erection of sanitary annexes and alterations to laundry at the Belmont Workhouse, for the Metropolitan Asylums Board. Deposit £1. Mr. W. T. Hatch, M.I.C.E., M.I.M.E., engineer-in-chief, the office of the Board, Embankment.

Tewkesbury.—Sept. 9.—For alterations to property in Chance Street. Mr. W. Ridler, Borough Surveyor, Station Street.

Wales.—Sept. 4.—For the following works, for the Glamorgan County Council, viz.:—(1) New Council school at Brynmenyn, near Bridgend; (2) alterations and additions to the Clydach Council school, Swansea Valley. The Glamorgan County Council Offices, Westgate Street, Cardiff.

Wales.—Sept. 6.—For dry walling to face of cutting opposite the Ferry Tinplate Company's works, Briton Ferry, for the Glamorgan County Council. The Police Station, Briton Ferry, and at the County Council Offices, Cardiff.

Wales.—Sept. 6.—For building two houses in Lenton Pool, Denbigh. Mr. E. J. Edgar, 19 Holland Villas, Denbigh.

Wales.—Sept. 11.—For the construction of a small bridge over stream crossing the main road near Bleddfa, Radnorshire. Deposit £1 1s. The Clerk to the County Council, Llandrindod Wells.

Wales.—Sept. 14.—For erection of a sanatorium at Pontsarn, for the Guardians of Merthyr Tydfil Union. Mr. T. Roderick, architect, Clifton Street, Aberdare.

Wales.—Sept. 14.—For carrying out alterations to Pantscallog House, Dowlais, for the Guardians of Merthyr Tydfil Union. Mr. T. Roderick, architect, Clifton Street, Aberdare.

Warmley.—Sept. 6.—For the re-building of Cowhorn Hill Bridge, near Warmley, and the construction of improved approaches thereto, for the Gloucestershire County Council. Deposit £2 2s. Mr. E. S. Sinnott, M.I.C.E., County Surveyor, Shire Hall, Gloucester.

Watford.—Sept. 5.—For erection of a bandstand in Cassiobury Park. Mr. D. Waterhouse, engineer and surveyor, Council Offices, High Street, Watford.

Wigan.—Sept. 19.—For erection of additions at the Sanatorium, Whelley, for the Corporation. Drawings and bills of quantities may be obtained from the Borough Engineer, King Street West, Wigan.

Woolmer.—Sept. 18.—The Secretary of State for War invites tenders for the following work:—The erection of riding school at Longmoor Camp, Woolmer Sub-district. Send applications and 10s. deposit by September 8 to the Director of Barrack Construction, 80 Pall Mall, London, S.W.

At a special sitting of Greenock Dean of Guild Court Mr. W. Strachan was granted permission to erect five fourstorey tenement buildings in Mearns Street, Greenock, providing in all 40 houses—24 of three apartments and 16 of two apartments.

Stirling Town Council last week considered an application asking the burgh to feu or sell a portion of the old town wall, in order to erect a tenement of dwelling-houses near it. The Council, after some discussion, agreed that the proposal be not entertained. The Town Council agreed to drop the scheme for dealing with St. Mary's Wynd, one of the slum areas in the town, and also a proposed housing scheme.

The Leeds Corporation have hitherto levied a charge for admission to the spring and other special exhibitions, but for several years past the attendances have fallen off, with, in consequence, diminished receipts. It has, in consequence, been decided that all Corporation exhibitions shall henceforward be free. The total attendance in the Art Gallery for the year ending in March last was 310,729, or a daily average of 1,006.

TENDERS.

BURTON LATIMER.

For the following works in connection with proposed cemetery, viz.—(*a*) For erecting retaining wall, drainage, laying out of roads and paths, levelling, &c.; (*b*) unclimbable and wrought iron fencing and gates to enclose site, for the Burton Latimer Parish Council, Northants. Mr. J. T. Backwell, architect, Kettering.

Contract A.

Beardsmore & West	£650	0	0
Smart	587	18	5
Higgins	587	0	0
Capps & Keach	534	0	0
Hickman & Sons	525	0	0
Andrew	523	0	0
Smith, Edmunds & Co.	517	0	0
Wilmott	507	7	1
Drever	494	0	0
Phillips & Slow	463	5	5

Contract B.

Priest & Son, Ltd.	£465	19	0
Mather & Sons	463	18	6
Wrinch & Sons	435	0	0
Bilson	378	13	0
Johnson & Wright	370	0	0
Hayward & Sons	350	0	0
Hill & Smith	342	5	5
Miller & Sons	341	4	0
Elwell	302	11	4

CHESTER-LE-STREET.

For extension of the Union offices, for the Guardians.

Arnell	£1,025	0	0
Oates	977	18	0
Norman	994	0	0
White	930	0	0
Thompson & Son	928	13	7
Sowerby	920	0	0
Bruce	889	12	2
Mole	881	3	0
Burnett & Son	856	0	0
Smith	840	0	0

COVENTRY.

For the erection of a new mortuary and laundry extension at the Union Workhouse. Mr. T. F. Tickner, architect, Coventry.

Harris	£585	0	0
Cousins	557	0	0
Garlick	550	0	0
Worwood	547	0	0
Jones & Bacon	546	0	0
Clarke & Sons	540	0	0
Anelay	538	15	0
Lord	526	12	8
Kelly & Son	526	7	0
Goode, Holmsdale Road, Coventry (*provisionally accepted*)	518	0	0

GLASGOW.

For the erection of a library at Possilpark, for the Corporation of the City of Glasgow. Mr. G. Simpson, architect, Glasgow.

Accepted tenders.

Baxter & Sons, wrights, 20 Catherine Street	£1,857	17	0
Rodger, mason, Maxwell Road	1,853	9	1
Hamilton & Co., concrete, 7 Surrey Street	534	4	8
Fleming Bros., steel, 65 Bath Street	459	4	7
Arnot, plumber, 204 Bath Street	417	18	0
Keem & Wardrop, tiles, 167 Bath Street	320	13	3
G. & J. Rae, glaziers, 21 Ingram Street	282	15	1
G. & R. Wemyss, plasterers, 39 Victoria Road	206	7	11
Hamilton & Co., slaters, 7 Surrey Street	52	0	0

For the supply of a laundry, French cleaning and carpet cleaning plant, for the Calcutta Steam Laundry Co. Mr. E. R. Gayner, consulting engineer, Paisley.

Gebr Poensgen	£965	16	0
Cherry Tree Machine Co.	934	16	6
Smith & Paget	782	9	0
Manlove, Alliott & Co.	770	0	0
Summerscales & Sons	729	5	0
D. & J. Tullis	701	10	0
Armstrong & Co.	675	10	0
Ritchie	662	15	0
Hill & Herbert	653	6	0
Braithwaite & Son	584	8	6

A VIEW IN THE GARDEN SUBURB.—Design by Mr. O. Newbold.

ISLE OF WIGHT.

For supplying and laying a surface water drain, with the necessary fittings, &c., between Bonchurch Road and the foreshore, Bonchurch, for the Rural District Council. Mr. T. R. Saunders, A.M.I.C.E., engineer, Ventnor.

J. G. & W. Jolliffe	£847	0	0
Brading	833	17	0
Hayles & Son	818	11	6
Ewart	739	6	6
Streeter & Co.	721	0	0
Cooper & Co.	701	15	1
Day & Sons	679	13	2
Rousell, Ventnor (*accepted*)	674	13	11

LEATHERHEAD.

For the erection of foreman's cottage at the outfall works.

Jones & Andrews	£379	0	0
Shoosmith & Lee	355	0	0
Impson	345	0	0
Faux	345	0	0
Norris & Limming	324	0	0
H. & A. Osman	310	0	0
W. H. Brown, Leatherhead (*accepted*)	298	0	0

SOUTH SHIELDS.

For erection of two additional elementary school departments on the Stanhope Road school site, together with a handicraft centre and a caretaker's house.

J. L. Miller, North Shields (*accepted*) . £8,453 18 8

SURBITON.

For sewerage and sewage disposal works, for the Urban District Council. Mr. H. T. Mather, engineer.

Firth	£47,896	0	0
Bell & Sons	42,382	0	0
MacAlpine & Sons	41,317	0	0
Dickson	41,043	0	0
Price & Co.	38,812	0	0
Shellabear & Son	38,451	0	0
Smith & Sons	38,388	0	0
Paramors, Ltd.	37,300	0	0
Cunliffe & Sons	35,347	0	0
Dick, Kerr & Co.	35,250	0	0
Pedrette	34,729	0	0
E. & E. Iles	33,700	0	0
Amended tenders.			
E. & E. Iles	34,376	0	0
T. W. Pedrette	33,528	0	0
Dick, Kerr & Co., Cannon Street, E.C. (*accepted*)	33,498	0	0

STOKE-ON-TRENT.

For the erection of power-station, for the Borough Council.

Wardle, Longport (*accepted*) . £5,120 0 0

For extension at the Burslem electricity works, for Stoke-on-Trent Borough Council.

Grant, Burslem (*accepted*) . £615 0 0

WALTHAMSTOW.

For painting, &c., at the Technical Institute, for the Essex Education Committee. Mr. F. Whitmore, county architect, Chelmsford.

Fuller & Son	£310	0	0
Lucas	295	0	0
Rogers	284	17	0
Barton	262	0	0
Penn	246	0	0
Sands	237	10	0
Page, Walthamstow (*accepted*)	202	10	0

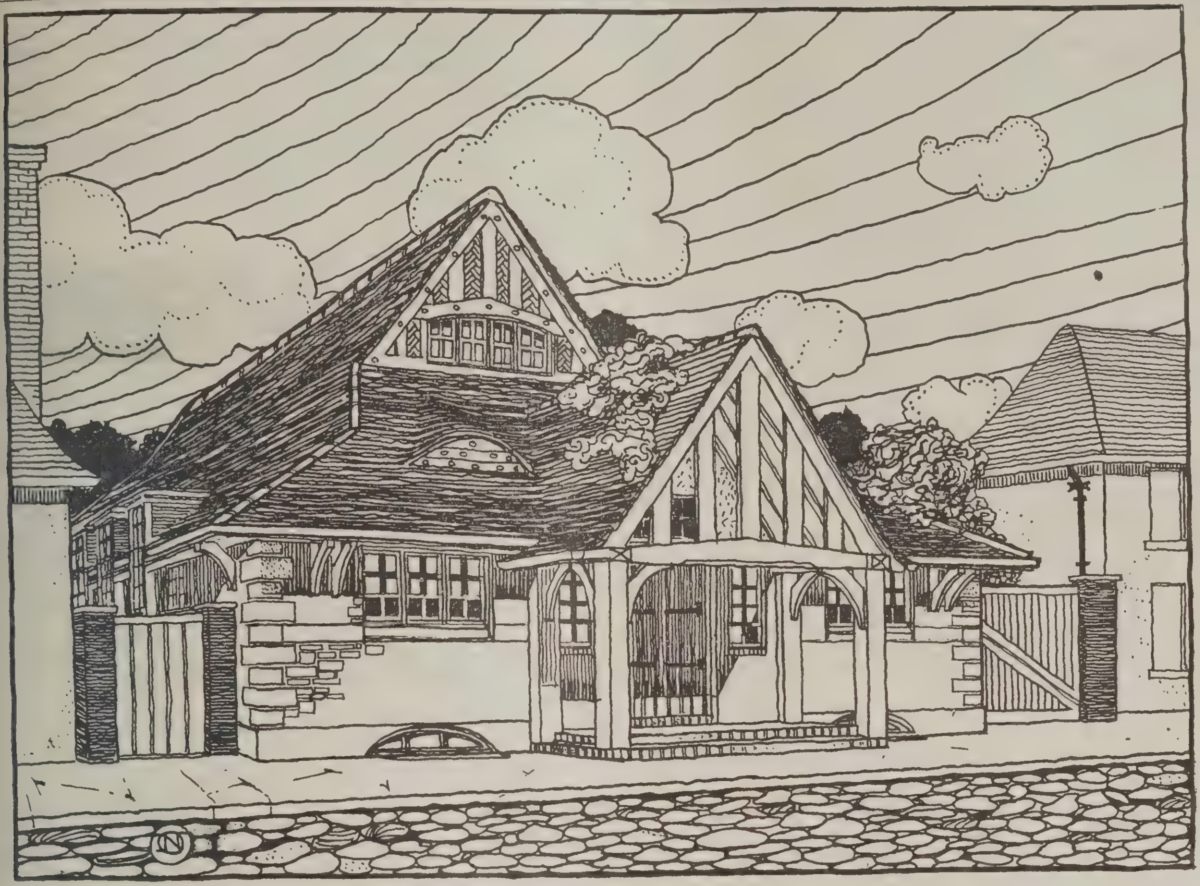
WORKSOP.

For erection of children's wards, also extension of adult males' ward and new kitchens, &c., at the Victoria Hospital. Mr. A. H. Richardson, architect, Worksop.

A. J. Doncaster, Worksop (*accepted*) £2,012 2 11

THE RISE OF SAO PAULO.

The remarkable growth of Brazil's wonder city, Sao Paulo, is described in a report on the trade of the State of Sao Paulo in 1910 by His Majesty's Consul, Mr. O'Sullivan-Beare. In 1887, he says, Sao Paulo was a quiet, rather sleepy town of the usual up-country Brazilian type, with a population of some 47,000 inhabitants. When the great tide of immigration into the State of Sao Paulo commenced in the year 1887, a considerable proportion of the new-comers established themselves in the capital, with the result that the population increased by leaps and bounds during the ensuing years, rising last year to 350,000. At the present time Sao Paulo ranks as the second city in Brazil. The appearance of the new city of Sao Paulo, which has sprung into existence within the past twenty years, is a matter of surprise to visitors. Sao Paulo now resembles one of the great cities of Europe. The principal business streets are lined with shops, which, in outward appearance and in the variety and richness of their contents, vie with those of Paris or of London. The city has been planned with much taste; the various streets and avenues are wide and straight, all well paved, and planted with shade trees. Throughout the city exist a number of public gardens, admirably laid out and beautiful with their wealth of tropical verdure. The private residences are remarkable, on the whole, for the originality and beauty of their architecture, while many are of great size and magnificence. The bustle and activity and



DESIGN FOR A VILLAGE HALL.—By Mr. O. Newbold.

he ever-increasing traffic which prevail throughout the city luring business hours make it difficult for new-comers to ealise that they are in a Brazilian town. The municipality pend money liberally with a view to improving and beautiying the city. There is just being completed a municipal heatre, which vies in magnificence with that of Paris, upon vhich it is modelled. It is estimated that the total cost of his opera house will exceed £1,500,000. Within the past ew months the municipality have voted a sum of £400,000 or the purpose of constructing a new avenue of communication. A scheme is under discussion for the carrying out of an immense project, estimated to cost some £3,000,000, amely, the construction of a series of main boulevards to raverse the city in different directions. The progress of he city at the present time may be gauged from the great ctivity which prevails in the building trades. On all ides are to be seen houses in course of construction, and houses are immediately occupied as soon as finished. New houses are being built at the rate of 3,000 per annum.

Penzance Town Council have decided to increase their water supply by boring an artesian well at the foot of Hendra to a depth of 90 feet and connecting it with the present well by an adit 120 fathoms in length.

Plans have been submitted to the Birkdale District Council, on behalf of Mr. C. J. Weld Blundell, for an important development of the land on the seaward side of the Birkdale Esplanade. Altogether the erection of about a hundred houses, detached and semi-detached, is contemplated.

The value of the Portland cement manufactured in New South Wales during 1910 was £251,110—an increase of £48,910 over the figures for the preceding year. The quantity of lime produced during 1910 was 30,113 tons, which had a value of £30,189.

The Dartford Town Council will at their next meeting consider the following resolution: "That a Public Hall be erected upon the vacant land belonging to the Council, adjoining the grounds of the Acacia Hall, and shown upon the plan now laid before the Council. That the Surveyor be instructed to take levels and prepare a site plan, that the preparation of the plans of the building be let out to public competition, and that premiums be offered for the three best designs."

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit full particulars to Room 6, Imperial Buildings, Ludgate Circus, for insertion in this weekly list.)

ENGLAND.

Cheshire.
Macclesfield.—St. Paul's Church: tower restoration.

Cornwall.
St. Blazey and Tywardreath.—Water supply scheme (£1,000).
St. Dominick.—Church restoration.
St. Gorran.—Church restoration.
St. Juliot.—Church pulpit.
Tywardreath.—(See above.)

Cumberland.
Penrith.—Grammar School. Messrs. Harrison & Ash, architects.
Silloth.—Coronation memorial shelter, Skinburness Road. Mr. H. H. Hodgkinson, architect. Mr. T. W. Underwood, contractor.

Derbyshire.
Bakewell.—Workhouse steam laundry (£355).
Repton.—Sewerage scheme. Messrs. Shaw, Son & Fuller, engineers (£5,500).

Devonshire.
Ideford.—Water supply scheme.
Northmolton.—Water supply scheme.
Paignton.—Railway Hotel alterations. Mr. W. G. Couldrey, architect.
Stoke Canon.—School alterations.
Totnes.—Cattle and sheep markets improvements (£1,000).

Dorsetshire.
Dorchester.—County offices: boiler house. County Surveyor.

Durham.
Consett.—Drill Hall, Victoria Street. Mr. Bolam, contractor.
Durham.—Presbyterian church hall (£1,000).

ESSEX.
Earls Colne.—Water supply scheme. Messrs. Sands & Walker, engineers.
Grays.—Drill Hall, Instructor's quarters, &c.
Great Baddow.—Covered reservoir (£550). Council Surveyor.
Ingatestone.—Cottages.
Rochford.—Guardians' boarding-house for babies. Nurses' Home. Mr. W. J. Wood, architect.
Romford.—Drill Hall, Instructor's quarters, stabling, &c.

HAMPSHIRE.
Walton.—Additions to Messrs. F. Sage & Co.'s factory. Mr. Alan W. Ruddle, A.R.I.B.A., architect.

HEREFORDSHIRE.
Ross.—Free library.

HERTFORDSHIRE.
Hertford.—Public Elementary School (accommodation for 200).
Hoddesdon.—Sewerage scheme (£700).
Willians.—Alterations to the "Three Horseshoes" public-house.

ISLE OF MAN.
Douglas.—Home for the Poor (Asylums Board): alterations and additions. Messrs. James Cowle & Son, architects.
"Murray's House," Mount Havelock: alterations. Messrs. James Cowle & Son, Government architects.
Maughold.—Church room (for 100 persons) for the Dhoon. Mr. B. W. H. Brameld, F.R.I.B.A., architect. Mr. Comaish and Messrs. Callow & Sons, contractors.
Rushen.—Parish church restoration.

ISLE OF WIGHT.
Carisbrook.—Castle Chapel: Cochrane memorial stained-glass window.

KENT.
Gillingham.—Naval and Marine Orphanage (£3,000).
Halling.—Sewerage works. Mr. A. J. Martin, engineer. Messrs. Hardy & Co., contractors (£7,315).
Maidstone.—Messrs. Dennis, Paine & Co.'s premises in High Street (additions).
Motor garage, &c., at Ensinge House.

LANCASHIRE.
Bolton.—Church at Heaton. Messrs. Austin & Paley, A.R.I.B.A., architects.
Lytham.—Lytham and St. Anne's Golf Club-house (£3,100). Mr. G. H. Willoughby, F.R.I.B.A., architect.
Rochdale.—Workhouse infirmary: nurses' home (£5,500). Mr. H. H. Clough, architect.
St. Helens.—Thatto Heath Council School extension. Messrs. Biram & Fletcher, architects.
Warrington.—Council school. Mr. T. A. Buttery, architect.

LEICESTERSHIRE.
Market Harborough.—Church spire restoration. Messrs. Stockdale Harrison (F.R.I.B.A.) & Sons (AA.R.I.B.A.), architects (£250).

LINCOLNSHIRE.
Brigg.—Alterations to the Old House at Messrs. Spring & Co.'s factory.
Grammar School extension.
Lincoln.—County Hospital: alterations to the Dispenser's House. Mr. W. G. Watkins, A.R.I.B.A., architect.

NORFOLK.
King's Lynn.—St. James' Infant School additions.
Norwich.—St. Barnabas' Parish Hall. Messrs. Lacey & Upcher, architects (£650). Mr. H. C. Greengrass, contractor.

NORTHUMBERLAND.
Newbiggin.—Group of ten miners' cottages.
Newcastle.—Drill-house for Territorials (£3,500).

NOTTINGHAMSHIRE.
Carlton.—Central Offices for Urban Council (£2,000).
Office for Inspector of Nuisances.
Baths (£5,000 to £6,000).
Nottingham.—Territorial Headquarters, Derby Road.

SHROPSHIRE.
Admaston.—Sewerage scheme (£2,700). Messrs. Wilcox & Raikes, engineers. Messrs. Nevitt, contractors.
Church Stretton.—Tramp cells at the Workhouse.

STAFFORDSHIRE.
Tipton.—Sewerage works. Mr. W. H. Jukes, engineer and surveyor.

SUFFOLK.
Hollesley.—Elementary School enlargement (£575).
Leiston.—Council Elementary School (£665).
Mutford.—Elementary School (£1,345).
Reydon.—Council Elementary School enlargement (£372).

SURREY.
Byfleet.—Water supply scheme.
Chertsey.—Children's Home at the Workhouse.
Surbiton.—Sewerage scheme. Messrs. Dick, Kerr & Co., contractors (£33,500).
Thorpe.—Nine working-men's houses. Mr. W. Beauchamp, contractor (£1,823).
Wimbledon.—Tuberculosis dispensary.

WARWICKSHIRE.
Bordmere and Wylde Green.—Conservative and Unionist Club, Highbridge Road.

WORCESTERSHIRE.
Dudley.—St. Paul's Church mission hall.
Evesham.—All Saints' Church restoration. Mr. F. Bligh Bond, F.R.I.B.A., architect (£160).
Kempsey.—Sewerage scheme.
Pershore.—Coronation memorial swimming bath.
Powick.—Water supply scheme (£1,300).
Shipston-on-Stour.—Sewerage scheme (£6,100). Messrs. Willcox, Raikes & Reed, engineers.

YORKSHIRE.
Bradford.—Branch library, Great Horton. City Architect.
Bridlington.—Water supply scheme (£2,000).
Doncaster.—Church at Woodlands. Messrs. Mullins & Richardson, contractors (£7,000).
Easingwold.—Two cottages at Bohemia Park, Huby.
Edlington and Warmsworth. — Sewerage schemes (£5,500).
Huddersfield.—Tenements.
Leeds.—Training College, Women Students' Hostel. Mr. W. P. Schofield, A.R.I.B.A., architect.
Warmsworth.—(See above).

WALES.

Abergele.—Bungalow at Pant Glas.
Builth.—Museum.
Denbigh.—Two houses in Lenton Pool.
Market, town hall, and municipal buildings (£18,000). Messrs. Porter & Elcock, architects.
Llanddewi'r Cwm.—Church restoration.
Llandudno.—Church at West Shore.

SCOTLAND.

Banff.—Asylum superintendent's residence (£1,000).
St. Andrew's Episcopal Church additions.
Broughton Ferry.—Alterations to Harecraigs House, Garage and motorman's house at Corona.
Buckie.—Property in Cluny Terrace (additions and alterations). Messrs. Sutherland & George, architects.
Cavedon.—Four cottages. Mr. D. W. Galloway, architect.
Dumbarton.—Lodging house (215 beds), Risk Street. Mr. J. Bell, architect.

IRELAND.

Pembroke.—Sewerage works.

H.M. CONSUL at Buenos Aires (Mr. A. C. Ross, C.B.) has furnished the Board of Trade with the name of the successful tenderer for the erection of a new General Post Office at that place, at a cost of about £630,000. The name and address of the contractor may be obtained by British purveyors of material on application to the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

THE Glasgow Corporation Tramways Sub-Committee on Extensions last week considered a report by Mr. James Dalrymple, the general manager. The most important of the various schemes was that for relieving the congested traffic on Glasgow Bridge by the construction of another bridge across the Clyde from Portland Street on the south side to St. Enoch Square on the north side. This scheme will probably involve the removal of St. Enoch Church and the laying of a line of tramways along Buchanan Street, linking up the present routes at the junction of West Nile Street and Cowcaddens.

LIVERPOOL BUILDING TRADE.

The annual report of Mr. John T. Alexander, the City Building Surveyor, states that during the year 1910 there were 1,710 houses erected in Liverpool. This number is 439 less than the previous year's figure, and 396 below the average for the past 12 years. The greatest number of houses built in any one division of the city has again been erected in the Walton Division where the high figure of the preceding year has been almost maintained. The number of houses in the city at the end of 1910 was 154,681. In the report for 1909 attention was called to the fact that there seemed a disposition to bring into being residential flats chiefly by the conversion of old and large houses in the central part of the city. The movement has not progressed to the extent anticipated, and few of such conversions have been carried out, whilst the only new flats erected have been six in Upper Parliament and Percy Streets, which are partly an existing house altered and adapted for the purpose and partly a new building.

The last year has, however, seen the beginning of an experiment of great interest and possible value to the City and the entire community. The Liverpool Garden Suburb Tenants, Ltd., being the local branch of the Co-Partnership Tenants, Ltd., has commenced the building of a Garden City in Wavertree and Childwall, the Wavertree portion being within the boundary of Liverpool. The erection of houses tasteful and varied in design and provided with open spaces affording some opportunity for the cultivation of flowers and trees will add considerably to the appearance of the suburbs, and may be influential in inducing the more commercial landowners to lay out streets and estates in a similarly attractive manner.

The beneficial effect on the character and well-being of the people who will live in such delightful surroundings, in the provision of which sunlight and pure air and other sanitary necessities of healthful living are so admirably secured, must be incalculable. Another and very important consideration is that the erection of these Garden City houses in a manner which makes it possible to lay out only a very limited number of houses to the acre has accentuated the fact that the existing bye-laws may operate somewhat needlessly in respect of such houses. It is probable, therefore, that the Corporation will during this year obtain powers to modify or relax in some respects the bye-laws, the purposes of which are fully achieved in a Garden City without the actual requirements being observed in every literal particular. Certainly, when a little time has elapsed, and trees, shrubs, and hedges have grown sufficiently, the appearance of this Liverpool Garden Suburb should be very pleasing, and should afford an excellent example of artistic and picturesque laying-out of streets, houses, and open spaces.

The newer methods of construction, whether of steel framing or reinforced concrete, still continue to be used, and will doubtless be increasingly used in the future. The extension of the Adelphi Hotel, seven storeys high above ground, and the buildings of which when completed will cover an area of 1½ acres, is a splendid example of a steel frame building, and most admirable in design from a constructional point of view, whilst a new oil mill in Kent Street is a very good example of reinforced concrete applied to the purposes of a heavy building.

Places of public resort are periodically visited in order to ensure that the requirements of the Health Committee are being maintained. Owing to new methods of construction, buildings now call for more attention and closer supervision than formerly, whilst dangerous structures have necessitated a large expenditure of time in inspection and in following up the many notices served. The "Dangerous" notices actually served in 1910 were 619 in excess of the number of such notices in 1909.

There are only eight district building surveyors for the whole of the city, and consequently the average size of a single district is over 2,000 acres, and the average length of streets in such districts is over 65 miles. With regard to the matter of dealing with dangerous structures, it is worthy of remark that in connection with the 3,594 "Dangerous" notices served last year the duty of attending fires and of dealing with the dangerous portions is highly important, and sometimes leads to a great expenditure of time, the greater part of several days having sometimes to be spent at the building which has suffered from fire, whilst dangerous portions are taken down by order of and under inspection by, the building surveyor.

Another grave matter is that of seeing, as far as possible, that warehouses are not overloaded. Warehouses have not unfrequently been found to be overloaded to a dangerous extent, and the building surveyor has been compelled to require the loads on the various floors to be reduced. In this way a number of possible disasters have been avoided.

On the completion of thirty-four years' continuous service as building surveyor, Mr. Corkhill intends to retire. He was for many years the senior district building surveyor, and for some years past has been an assistant surveyor, whose special duties have been concerned with the means of escape from factories and workshops, and the means of egress from places of public resort.

Houses Erected During 1910.

District.	Number of Houses Erected.	Rentals. £12 to £18.	£18 to £25.	£25 to £35.	£35 and Over.
Walton	723	55	556	73	39
West Derby	335	17	256	27	35
Wavertree	354	—	280	29	45
Old City	48	42	—	3	3
Garston	81	5	32	28	16
Toxteth Park	138	—	124	8	6
Fazakerley	31	—	31	—	—
	1,710	119	1,279	168	144

No houses under £12 rental were erected.

The other buildings erected in Liverpool last year were:—Workshops and stables, 100; public buildings and manufactories, 38; warehouse, 1; additions and alterations totalling 639.

The demolitions were:—Houses, 595; workshops and stables, 54; public buildings, offices, and manufactories, 4.

RUBEROID DAMP-COURSE.

It may be said without the slightest fear of exaggeration that "Ruberoid" can be used from basement to roof, from the footings to the eaves. During the past twenty years it has been employed in numberless places as a roof covering, a damp-course in walls, as a damp-proof backing for dadoes, and as a damp-proof layer in flooring. But it is on "Ruberoid" as a damp-course that we want to speak now.

What is it? "Ruberoid" damp-course is composed of a fibre base saturated and coated on both sides with "Ruberoid" compound, which is time, water, acid and alkali proof. The stock is in rolls of two thicknesses and in widths from 4½ to 36 inches. The makers recommend that the 2-ply should be specified for horizontal and 3-ply for vertical damp-coursing.

Its waterproof qualities and permanency have been demonstrated both in theory and in practice, in the laboratory and on the job. That it will not squeeze out may be inferred from the fact that in a test it withstood a pressure of 2,688 lb. to the square inch. Furthermore, up to a temperature of 300° Fahr. it will remain unaffected. A conspicuous feature of "Ruberoid" is the elasticity which enables it to adjust itself to any settlement or other unexpected trouble even in such trying positions as bridges and tunnels. The Ruberoid Co., Ltd., have works at Brimsdown, Middlesex, where the most modern equipment has been installed to ensure the production of a high-grade uniform-quality damp-course. A damp-course may be put out of sight, but it should never be put out of mind by those architects and builders possessed of the genius of taking pains. On it a great deal may depend, and it behoves architects and builders to run no possible risk by specifying any but the best.

COMPETITION NEWS.

Coseley.—All designs submitted in competition for the proposed Council school for 200 children must be delivered at the offices of the Education Committee not later than October 12. Any questions must reach the Secretary not later than September 8. No site plan is furnished.

The Sunderland Education Committee are considering a recommendation that steps be taken to purchase 12 acres 36 square yards of land on the Ford Estate, Hylton Road, for the purpose of a training college at a cost of £7,818 5*s.* 3*d.*

Winnipeg stands first in the list of building permits issued in Canadian cities during June. The total value is put at 2,790,250 dollars. The second place is taken by Toronto with 2,384,400 dollars, and the third by Calgary with 1,826,250 dollars.

VARIETIES.

A new church is about to be built at Borth-y-Gest, Portmadoc, the site for which has been given by Lord Harlech. The plans of the building have been prepared.

Messrs. Hadfield, architects, Sheffield, have prepared plans for a church to be erected at Woodseats, at an estimated cost of £7,000.

Blyth Education Committee last week decided to proceed with the erection of a school at the subway between Blyth and Newsham to accommodate 1,200 scholars in three sections of 400 each. The cost will be £11 10*s*. per head, or a total of between £13,000 and £14,000.

The Hoyland Urban Council have been in correspondence with the Local Government Board on the question of the proposed development of part of Earl Fitzwilliam's estate at Elsecar. On Tuesday the Council decided, in order to facilitate the scheme, to apply for permission to add to the by-laws a proviso for new streets to be made with grass borders of not less than 36 feet wide with building lines 66 feet apart, provided that not more than a given number of houses be built per acre.

The Banffshire District Lunacy Board have agreed:—(*a*) That a separate house be erected for the superintendent within the precincts of the Asylum property; (*b*) that the accommodation on the male side be extended; (*c*) that a verandah be erected on the male and female sides to provide for the feeble and sick; and (*d*) that an architect be appointed to prepare plans and specifications with probable estimate of cost.

At Dumbarton Dean of Guild Court on Monday a petition was submitted on behalf of Mr. James Bell, architect, Motherwell, for lining to erect a lodging-house in Risk Street. The Burgh Surveyor approved of the plans, except that the air space was inadequate and the stair landings were of combustible materials. He reported, however, that the plans were being amended to this extent, which would reduce the accommodation from 227 to 215 beds. The case was continued for a fortnight.

Definite arrangements have now been made for the union of the Amalgamated Society of Carpenters and Joiners and the Associated Society of Carpenters and Joiners. The union will take place as from September 1, and the name of the organisation will be the Amalgamated Society of Carpenters and Joiners. Mr. F. Chandler, general secretary of the present Amalgamated Society, will be general secretary of the new organisation, and a post equal in salary to that which he already holds will be found for Mr. Alex. Stark, secretary of the Associated Society.

The Norton (Malton) Urban District Council, by five votes to four, resolved on Monday to go back to the use of gas, instead of electricity, as the motive power for the pumping at the town's waterworks. Recently the Council asked for a five years' tender for pumping from the Malton Gas Company and from the Northern Counties Electricity Supply Company (who had the last contract). The latter sent in a tender of £171 per year (based on the units of electricity used on the last contract), and the Gas Company one of £96 per year. The latter tender was accepted, after a division.

The Sheffield Education Committee recommend that a plot of land containing about 2,800 square yards, adjoining Western Road Council School, be purchased from Gillatt's Trustees for the sum of £750, for the purpose of erecting additional public elementary school accommodation. The Buildings Sub-Committee have also had under consideration the question as to school accommodation in the Hillsborough, Owlerton, Malin Bridge, and Wadsley districts, and they recommend that the City Architect be instructed to prepare plans for the erection on the site at Wharncliffe View, Lower Wadsley, of a two-storey building to accommodate 420 infants and 420 older children, together with provision for cookery, laundry, and manual work, and a caretaker's house. The Board of Education have approved the plans for the provision of a laundry centre at the Lancasterian Council School, Sheffield.

At the meeting last week of the Edinburgh Dean of Guild Court twenty-six petitions were considered. Six warrants were granted, and eleven petitions were remitted to the Burgh Engineer. The Edinburgh Ice and Cold Storage Co., Ltd., were granted warrant for the erection of an ice rink at Fountainbridge. The building, which is to be attached to the premises of the Cold Storage Co., is to consist of a rink, 160 feet long by 80 feet broad, with a broad corridor extending round the ice surface. Along the north side there will be tea and smoking rooms, and the usual cloakrooms and storage accommodation. The ice floor is to be maintained in a frozen condition by a series of pipes arranged in grids on the floor, and connected with the Company's freezing machinery. There are 22,000 feet of pipes. In the case of Messrs. John Swan & Sons, Ltd., who applied for warrant for an ice rink at Haymarket, the plans were found to be incomplete in some respects. The Court continued the case so that the plans might be completed. An interim warrant was granted to allow the petitioners to take down any existing buildings and to make excavations.

The strike in the brick and tile manufacturing trade of North Staffordshire was settled at a conference of masters and men at Newcastle-under-Lyme on Tuesday. About 1,000 workmen, employed by over thirty firms, were concerned. Three hours' discussion produced a basis of agreement upon which work will be resumed at once. A resolution, which was unanimously passed, provided for the recognition of the men's union, all the men engaged on piece work to return to work at the old rate of wages, men in the marl hole and general labourers 5¼*d*. per hour, gangers 5½*d*., and youths wheeling clay 2*s*. advance. It was hoped that the men would return to work after the holidays, but instead all the employers were served with a notice, bearing the signature of Mr. John Ward, M.P., Secretary of the Navvies and General Labourers' Union, demanding an advance of wages, to the extent in some cases of as much as 35 per cent. The employers state that in the first instance there was only dissatisfaction with the wages paid by two firms, and that the wider development of the strike has been influenced by intimidation. It is claimed that the wages paid by the following firms are well up to the average of the trade in any district, viz. Messrs. George Woolliscroft & Co., Messrs. Wheatly & Co., Messrs. Caddick & Sons, Messrs. Timmis & Son, Mr. Thomas Peake, and the Non-Porous Tile Company, and that but for the interference from outside and intimidation their workpeople would have returned to their employment before now.

TRADE NOTES.

The statutory meeting of Samuel Blow, Ltd., was held on Tuesday, August 22, at the registered office of the Company, 34 and 35 Upper East Smithfield, E. Mr. G. Samuel Blow was in the chair.

The new Council schools, Swindon and Claybrooke, have been supplied with Shorland's warm-air ventilating patent Manchester grates, by E. H. Shorland & Brother, Ltd. The Woodford Church, Cheshire, is being ventilated by means of Shorland's patent concealed extract ventilators and inlet ventilators; and the John Coupland Hospital, Gainsborough, is being supplied with Shorland's double-fronted patent Manchester stoves, with descending smoke flues, patent Manchester grates, exhaust roof ventilators and inlet ventilators, by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

Among that class of patent smoke-cure chimney-pots which have no loose or moving parts is the Perfect Draught Pot of Messrs. J. H. Sankey & Son, Ltd., of Canning Town, E. This pot is made throughout in red and buff terra-cotta or in a brown glaze. There are three heights—viz. 30 inches, 42 inches, and 48 inches, while the stock width at the base is 12 inches. The principle is that of three superimposed cones supported on perpendicular divisions in such a manner as to form broad mouth-like openings or louvres completely round the pot. These catch the wind coming from any quarter and direct it upwards, causing a powerful up-draught in the chimney. For exceptionally difficult cases an ornamental pierced cap or cover has been designed to fit over the pot. But the internal combustion of the pot prevents ordinary down-draught. Messrs. Sankey & Son offer it as a cheap and effectual pot which has nothing to get out of order in any way. They are supplying them all over the country and find they give the greatest satisfaction.

ANSWER TO CORRESPONDENT.

Fixtures (Perplexed).—A tenant may remove a shed or conservatory which simply rests on the ground and leans against the wall, provided it is removed before the expiration of the tenancy and without injury of any importance to the landlord's property. The tenant must repair any injury to the premises caused by the removal. Ornamental stones may also be removed, as well as any rustic woodwork that is not imbedded in the earth or nailed or cemented to the landlord's property in such a way as to cause substantial damage by its removal.

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The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2* P.M. *on Thursdays.*

COMPETITIONS OPEN.

ATHENS.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l.* A first prize of 800*l.*, and a second prize of 320*l.* will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

AUSTRALIA.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

BARNSLEY.—Oct. 7.—The Town Council invite competitive drawings for a proposed extension of public baths, including a swimming bath, Russian and vapour baths, and slipper baths, in connection with the existing public baths in York Street and Race Street, Barnsley. The Town Council offer premiums of £50, £30 and £20. Mr. J. H. Taylor, M.I.C.E., borough surveyor, Manor House, Barnsley.

BRISTOL.—Oct. 31.—The Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

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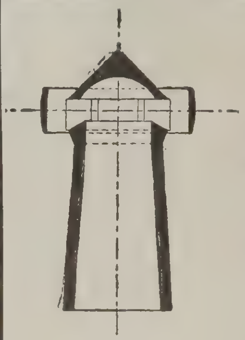

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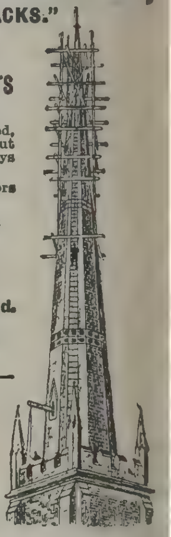

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Coseley.—Oct. 12.—Plans for school for 200 children for the Education Committee, at Dimmock Street, Parkfield, Coseley, W. Dudley. Conditions, one guinea, returnable on receipt of plans. Mr. Fred J. C. Poole, Secretary, Education Offices, Coseley, near Bilston.

Evesham.—Oct. 7.—The Rural District Council invite designs, with estimates of cost, for laying out a building site at Broadway and the erection thereon of 30 cottages, under the Housing and Town Planning Act, 1909. The architect whose design is accepted will be appointed to carry out the work at an inclusive fee of 5 per cent. Deposit £1 1*s*. Mr. E. H. Wadams, Clerk, Union Offices, Evesham.

Hastings.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1*s*. deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

London.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1*s*., which will be refunded on receipt of a bona-fide design or return of conditions within one month of receipt. All particulars from Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

Murton.—Oct. 4.—The Easington Rural District Council invite plans for three separate types of houses, of which it is proposed to build 100 at Murton Colliery, Durham. The houses to be in streets of twenty with 16 ft. back streets, 18 ft. frontage, and garden ground in front of each house to a depth of 30 ft., an earth closet and outside pantry to be provided for each house. Strict compliance with the Council's by-laws and the Local Government Board regulations will be required. The following are the types of houses:—Type A.—28 ft. gable, three bedrooms, one living room, one sitting room, scullery (offshot), with kitchen range and bath. Type B.—25 ft. gable, three bedrooms, one living room, scullery, with kitchen range and bath. Type C.—Two bedrooms, one living room and scullery, with kitchen range and bath. Appearance and economy of structure will be considered. The successful candidate will receive 2½ per cent. commission upon the net cost of buildings when erected. No other remuneration will be paid. Mr. J. M. Longden, Council Offices, Easington, Castle Eden.

Newcastle-upon-Tyne.—The Education Committee invite competitive plans from architects practising in Newcastle for a Senior Mixed School and a Junior Mixed School, each to accommodate 365 children, at Walker Gate. Mr. Spurley Hey, secretary, Education Offices, Northumberland Road, Newcastle-upon-Tyne.

Pontefract.—Sept. 9.—The Council of the Borough invite competitive designs from architects practising in the West Riding of Yorkshire for the erection of public swimming and other baths at a cost not to exceed £4,500. Particulars and conditions as to the nature of the buildings, the remuneration of the successful architect, and the premiums for the designs adjudged to be first and second, can be obtained of the Borough Surveyor, Municipal Offices, Pontefract.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Wales.—The Cardiff Education Committee invite designs and estimates in competition for a technical institute proposed to be erected in Cathays Park. Mr. J. S. Gibson, architect, will act as assessor. Full particulars will be sent to architects on application, accompanied by a deposit of £2 2*s*., which will be returned to all architects submitting bona-fide designs or who return the conditions within six weeks. Mr. J. Jackson, director of education, Education Offices, City Hall, Cardiff.

The Coleraine Rural District Council have just approved of a new improvement scheme for the erection of 66 labourers' cottages, at an estimated total cost of £11,291.

CONTRACTS OPEN.

Aldershot.—Sept. 12.—For alterations and additions to the Royal Pavilion, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. H.M. Office of Works, &c., Storey's Gate, S.W.

Barrow-in-Furness.—Sept. 15.—For the extension of Barrow-in-Furness Post Office, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. The Postmaster, Barrow-in-Furness, or the Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

Bawnboy (Ireland).—Sept. 22.—For erection and fencing of 45 single labourers' cottages at Bawnboy. Mr. Townsend, architect, Carrickboy, Ballyshannon.

Birmingham.—Oct. 3.—For the Finishings (second) Contract at the Telegraph Stores, Block C. Deposit £1 1*s*. Mr. J. Tosh, H.M. Office of Works, Pinfold Street, Birmingham, or H.M. Office of Works, Storey's Gate, London, S.W. (See advertisement.)

Birstall.—Sept. 16.—For the various works required in erection of three terrace houses at Birstall (Yorks.). Messrs. J. Firth & Son, architects, 67 Vulcan Road, Dewsbury.

Bradford.—Sept. 21.—For the construction of a chimney shaft 200 feet high, built of brickwork, with a sandstone masonry face, at the Esholt Sewage Disposal Works. Deposit £1 1*s*. Mr. J. Garfield, A.M.I.C.E., Esholt Hall, near Shipley (station, Apperley Bridge, Midland Railway).

Bridgwater.—Sept. 11.—For the various works in connection with the enlargement and alteration of the cloakroom and latrine accommodation in the girls' department, Albert Street Council School. The Borough Surveyor, Municipal Buildings, Bridgwater.

Bridgwater.—Sept. 12.—For various repairs, slight alterations, painting, and renovation of various rooms and apartments in connection with the Town Hall and Municipal Buildings. The Borough Surveyor, Municipal Buildings.

Bridlington.—Sept. 19.—For improvements at Bridlington Station, for the North-Eastern Railway Co. Mr. W. Bell, the Company's architect, at York, or the Station Master's Office, Bridlington.

Bristol.—Sept. 25.—For the construction and maintenance for twelve months after completion of a single floor transit shed on the west wall of the Royal Edward Dock, Avonmouth, for the Docks Committee. The contract includes timber piling, concrete foundations, timber floor, steel stanchions and roof principals, and galvanised corrugated iron covering. Mr. W. W. Squire, engineer, Engineer's Office, Cumberland Road, Bristol. Send a deposit of £5 to the Secretary of the Docks Committee, Docks Office, 19 Queen Square, Bristol.

Buckfastleigh.—Sept. 12.—For repairing barn and shippen at Scoriton, also new roofing same with galvanised iron. Mr. W. Codd, Scoriton Farm, Buckfastleigh.

Castle Coombe.—Sept. 14.—For carrying out alterations and additions at Castle Coombe Council School, near Chippenham, Wilts. Deposit £1 1*s*. Mr. J. G. Powell, county surveyor, Trowbridge.

Chelmsford.—Sept. 15.—For construction of additional cattle pens in their Market Place by fencing and paving (with concrete) a small portion of land, 33 yards long by 4 yards wide, for the Town Council. Specification may be inspected and form of tender obtained at the Borough Surveyor's Office, 16 London Road.

Consett.—Sept. 13.—For the several works required in erection and completing of three houses, Robson Street. Mr. T. H. Murray, architect and surveyor, Consett, Durham.

Dover.—Sept. 16.—For erection of a girls' school at Barton Road. Deposit £2 2*s*. Borough Engineer, Mr. W. C. Hawke, A.M.I.C.E., Maison Dieu House, Biggin Street, Dover.

Dublin.—For building printing works at Boyne Street for Messrs. Browne & Nolan, Ltd. Messrs. Doolin & Butler, architects, Dawson Chambers, Dublin.

Durham.—Sept. 19.—The County Council invite sole tenders for (1) alteration, &c., at Ford and Blaydon Council Schools, Mr. N. Richley, Shire Hall, Durham; (2) caretakers' houses at South Moor and Dawdon, Mr. W. Rushworth, Shire Hall, Durham.

Ellesmere Port.—Sept. 13.—The West Cheshire Water Co. invite designs and tenders for erection at Ellesmere Port of a ferro-concrete water tower. Capacity, 200,000 gallons. Mr. Isaac Carr, M.I.C.E., Farnworth, Widnes.

Ellesmere Port (Cheshire).—Sept. 21.—For new elementary school at John Street (accommodation 450), for Bebington and Neston area. Deposit £1 1*s*. Apply after

Sept. 9 to Messrs. Deacon & Horsburgh, architects, 12 St. George's Crescent, Liverpool.

Exeter.—Sept. 12.—For alterations and additions at the workhouse laundry. Mr. R. M. Challice, architect, 14 Bedford Circus, Exeter.

Glasgow.—Sept. 25.—For the extension of Glasgow General Post Office, for the Commissioners of H.M. Works and Public Buildings. Tenders are required for the whole work and not for separate trades. Deposit £1 1*s*. His Majesty's Office of Works, General Post Office, Glasgow, and H.M. Office of Works, 3 Parliament Square, Edinburgh.

Houghton-le-Spring.—Sept. 10.—For erection of new drill hall premises. Send names and £2 2*s*. deposit by Sept. 10 to Mr. H. Chapman, A.R.I.B.A., 38 Grainger Street West, Newcastle-upon-Tyne.

Huddersfield.—Sept. 11.—For erection of laundry extensions, for the Huddersfield Industrial Society, Ltd., in Alfred Street. Mr. J. Berry, architect and surveyor, 3 Market Place, Huddersfield.

Ireland.—Sept. 11.—For erection of six labourers' single cottages, and fencing plots to same, for the Rathdrum Rural District Council. The fencing to be wire, with iron standards, except where authorised specially by the engineer. Mr. B. Manning, clerk, Rathdrum.

Isle of Man.—Sept. 20.—For alterations to the house and premises known as "Murray's House," Mount Havelock, Douglas, for the Committee of Tynwald. Messrs. J. Cowle & Son, Government architects, St. George's Street, Douglas.

Isle of Man.—Sept. 23.—For alterations and additions to the Home for the Poor, Douglas. Deposit £1 1*s*. Messrs. J. Cowle & Son, architects, Douglas.

Keighley.—Sept. 19.—For the masons' and plasterers' work required in connection with the repairs to purifying houses and sheds at the Thwaites gasworks, for the Gas Committee. The Gas Offices, Cook Lane or Thwaites.

Kempston.—Sept. 16.—For erection of additions to the Bedford Road Council School, Kempston. Deposit £1 1*s*. The County Surveyor, Shire Hall, Bedford.

Kingham.—Sept. 13.—For erection of a school at Kingham, Oxfordshire. Deposit £2 2*s*. Mr. S. Stallard, county architect, 9 New Road, Oxford.

Leeds.—Sept. 11.—For erection of one hostel for women students at the City of Leeds Training College, Beckett's Park, Headingley (Mr. W. Peel Schofield, architect, Park Row, Leeds). Send names and £2 2*s*. deposit at once to Mr. J. Graham, secretary for education, Education Department, Claverley Street, Leeds.

Leake.—For the construction of a new bridge, also for repairs to two other bridges, in the parishes of Wysall and Willoughby, for the Leake Rural District Council. Mr. G. P. Pearson, P.A.S.I., surveyor, Sutton Bonington.

Leek.—Sept. 16.—For erection and completion of a Council School for about 356 older pupils and 100 infants. Send application and £1 1*s*. deposit by Sept. 16 to Mr. Graham Balfour, Director of Education, County Education Offices, Stafford.

Lingfield.—Oct. 2.—For building new drill hall premises at Lingfield, for the Territorial Force Association of the County of Surrey. Messrs. Jarvis & Richards, architects to the Association, 10 Queen Anne's Gate, Westminster, S.W. Send names and £1 1*s*. deposit by Sept. 15 to Messrs. Robinson & Roods, quantity surveyors, 8 New Court, Carey Street, Lincoln's Inn, W.C.

London.—Sept. 14.—For sundry works in providing and laying "Armadek" flooring, plastering walls, and decorative works to wards Nos. 11 and 18 of the Infirmary, Marloes Road. Mr. W. R. Stephens, clerk, Marloes Road, Kensington, W.

London.—Sept. 20.—For the erection of lavatory accommodation and shelters at Wormholt Park, Hammersmith, W. Mr. H. Mair, borough surveyor, Town Hall, Hammersmith, W.

London.—Sept. 25.—For building two sanitary conveniences (above ground) at Mortlake, for the Barnes Urban District Council. Mr. G. B. Tomes, A.M.I.C.E., surveyor, Council House, High Street, Mortlake.

Manchester.—Sept. 15.—For supply, delivery, and erection of a cast-iron tank and steel joists supporting same, at the Gaythorn Gasworks, for the Gas Committee. Mr. F. A. Price, superintendent, Gas Department, Town Hall, Manchester, or Mr. J. G. Newbigging, M.I.C.E., engineer, Rochdale Road Station.

Nantwich.—Sept. 16.—For erection of three single dwelling-houses and three sets of farm buildings, on the Sound Estate, near Nantwich, Cheshire. The County Estate Office, 49 Northgate Street, Chester, and at the Estate Office, 137 Nantwich Road, Crewe.

Neston.—Sept. 21.—For new handicraft and cookery centres and alterations to the Council school, Neston, Cheshire, for Bebington and Neston area. Deposit £1 1*s*. Messrs. Deacon & Horsburgh, architects, 12 St. George's Crescent, Liverpool.

Newcastle-upon-Tyne.—Sept. 11.—For bathroom in caretaker's house at Heaton Park Road School. Send application by Sept. 11 to the Secretary, Education Offices, Northumberland Road, Newcastle-upon-Tyne.

Newton Abbot.—Sept. 12.—For erection of a wood shed and the construction of a cold chamber at the Workhouse. Mr. Segar, architect, Union Street, Newton Abbot, Devon.

Nottingham.—Sept. 16.—For erection of bowls pavilion, urinal, &c., at Sycamore Road Recreation Ground. Deposit £1 1*s*. Mr. F. B. Lewis, city architect, Guildhall, Nottingham.

Parton.—Sept. 14.—For additions to the girls' and infants' school, Parton (Cumberland). Mr. J. Litt, Parton, near Whitehaven.

Ramsgate.—Sept. 9.—For extension of the manual room, required to be carried out at the County School. Mr. A. R. R. Franks, local secretary, Public Library, Ramsgate.

Ripley.—Sept. 18.—For erection of a cottage hospital. Deposit 10*s*. Mr. R. Argile, architect and surveyor, 36 Oxford Street, Ripley, Derby.

St. Helens.—Sept. 20.—For the erection of an extension of the Thatto Heath Council school, off Elephant Lane. Deposit £1 1*s*. Messrs. Biram & Fletcher, architects, George Street, St. Helens, Lancs.

Sale.—Sept. 19.—For erection of public baths, for the Urban District Council. Deposit £1 1*s*. Mr. W. H. Mitchell, A.R.I.B.A., architect, 94 Market Street, Manchester.

Salisbury.—For erection of a motor garage and residence in New Street. Mr. A. C. Bothams, M.S.A., A.M.I.C.E., architect, &c., 32 Chipper Lane, Salisbury.

Sandbach.—Sept. 16.—For erection of one single dwelling-house and one set of farm buildings, on the Moston Estate, near Sandbach, Cheshire. Deposit £1. The County Estate Office, 49 Northgate Street, Chester, and at the Estate Office, 137 Nantwich Road, Crewe.

Scotland.—Sept. 9.—For mason, joiner, plumber, slater, plaster, and painter work, in connection with the restoration of Falls of Lora Hotel, Connel Ferry. Mr. J. G. Falconer, architect, Alexandra Place, Oban.

Scotland.—Sept. 9.—For mason, joiner, slater, plaster, plumber and painter work of four cottages to be erected by Brechin District Committee of the County Council of Forfarshire at Oathlaw, Fern, Careston, and Dun. Mr. D. W. Galloway, architect, Brechin.

Scotland.—Sept. 25.—For the carrying out of the various works in connection with the provision and construction of a refuse destructor installation for efficiently burning without nuisance the refuse of the city, for the Aberdeen Town Council. Mr. W. Dyack, M.I.C.E., burgh surveyor, Town House, Aberdeen.

Stirchley.—Sept. 13.—For the construction of a wooden floor to cover the swimming pond at the public baths, Stirchley, during the winter months, and of a storage shed, for the King's Norton and Northfield Urban District Council. Deposit £1 1*s*. Mr. A. W. Cross, A.M.I.C.E., 23 Valentine Road, King's Heath.

Wales.—Sept. 9.—For erection of farm buildings, &c., at the Court Farm, Aberedw. Mr. T. Roderick, architect, Clifton Street, Aberdare.

Wales.—Sept. 11.—For alteration of a house, "Quarry Mawr," Abercych. Mr. J. T. Williams, architect, Napier Street, Cardigan.

Wales.—Sept. 11.—For the construction of a small bridge over stream crossing the main road near Bleddfa, Radnorshire. Deposit £1 1*s*. The Clerk to the County Council, Llandrindod Wells.

Wales.—Sept. 12.—For new pulpit, general repairs, and alterations of Carmel Congregational Church, Gwauncae-Gurwen. Mr. D. Morgan, architect, Brynheulog, Gwauncae-Gurwen.

Wales.—Sept. 13.—For proposed chapel school at the Elim Baptist Church, Pontllanfraith. Mr. T. Boulter, Pontllanfraith, or at the office of Mr. R. L. Roberts, M.S.A., Abercarn.

Wales.—Sept. 14.—For erection of a sanatorium at Pontsarn, for the Guardians of Merthyr Tydfil Union. Mr. T. Roderick, architect, Clifton Street, Aberdare.

Wales.—Sept. 14.—For carrying out alterations to Pantscallog House, Dowlais, for the Guardians of Merthyr Tydfil Union. Mr. T. Roderick, architect, Clifton Street, Aberdare.

Wales.—Sept. 16.—For erection of a mixed and infants' school to accommodate 550 children at Wattsville, Mon. Deposit £2 2s. Mr. J. Bain, F.R.I.B.A., County Council Offices, Newport.

Wales.—Sept. 16.—For the erection of a rectory at Newton, Porthcawl, for the Rev. T. Holmes Morgan. Deposit £2 2s. Messrs. G. F. Lambert & Son, architects and surveyors, Bridgend.

Wales.—Sept. 16.—For erection of two shops and house at Nantgarw, near Cardiff. Mr. W. D. Thomas, architect and surveyor, Porth.

West Ham.—Sept. 18.—For alterations of cloakroom, Regent's Lane Schools; new workshop, Grange Road Special Schools, for the West Ham Education Committee. Send applications and £1 deposit by Sept. 11 to Mr. William Jacques, A.R.I.B.A., architect to the Education Committee, 2 Fen Court, Fenchurch Street, E.C.

Whitehaven.—Sept. 11.—For the provision and erection of an oven at the Workhouse. The Master of the Workhouse, Whitehaven.

Wigan.—Sept. 13.—For erection and completion of a cart shed at Green Slate Farm, Billinge-Higher End, near Wigan. Mr. H. G. Ackerley, clerk, 9 Victoria Buildings, King Street, Wigan.

Wigan.—Sept. 19.—For erection of additions at the Sanatorium, Whelley, for the Corporation. Drawings and bills of quantities may be obtained from the Borough Engineer, King Street West, Wigan.

Wilts.—Sept. 25.—For carrying out certain repairs and renovations at the following County Police buildings, for the Standing Joint Committee of the County Council, viz.:—Police cottage, Chitterne; central police station, Devizes; police station, Fisherton, Salisbury; police station and cottage, Ludgershall; police station, Malmesbury; police station, Pewsey; police cottage, Shrewton; police station, Tisbury; police station, Trowbridge; police station, Warminster; police cottage, Yarnbrook. Mr. J. G. Powell, county surveyor, Trowbridge.

Woolmer.—Sept. 18.—The Secretary of State for War invites tenders for the following work:—The erection of riding school at Longmoor Camp, Woolmer Sub-district. Send applications and 10s. deposit by September 8 to the Director of Barrack Construction, 80 Pall Mall, London, S.W.

TENDERS.

ALDRIDGE.

For extensions to R.A.O.B. Orphanage, Aldridge, Staffs. Messrs. Jeffries & Shipley, architects, Walsall. Quantities by the Architects.

Smithies & Son, Ltd.	£2,616	14	9
Cheshire & Co.	2,580	0	0
Insley	2,542	0	0
J. & F. Wootton	2,520	0	0
Tooley	2,500	0	0
Dallow & Sons	2,495	0	0
Myring	2,495	0	0
Wistance	2,475	0	0
S. Wootton	2,439	0	0
A. G. Smith	2,400	0	0
F. J. Smith	2,398	0	0
Mason	2,395	0	0
T. & S. Ham	2,388	0	0
Morgan	2,370	0	0
Harris	2,330	0	0
Williams	2,307	0	0
Kendrick & Sons	2,300	0	0
Gough & Sons	2,290	0	0
Crowder	2,277	0	0
Rotheroe & Co.	2,267	0	0
Dorse	2,255	0	0
Guest & Son	2,250	0	0
J. C. Hill	2,210	0	0
J. W. Smith & Co.	2,198	0	0
Speake & Sons, Wolverhampton (*accepted*)	2,144	0	0

BIRMINGHAM.

For the extension of Tramway Depot, Whitmore Street, at Hockley. Messrs. Martin, architects, Birmingham.

				Months.
Sapcote & Sons	£23,233	0	0	12
Coles	23,156	0	0	10
Whitehouse & Sons	22,969	0	0	14
W. & J. Webb	22,496	0	0	12
Smith	22,450	0	0	12
Teall & Sons	22,225	0	0	10
Horton	22,163	0	0	9
Lowe & Sons	21,034	0	0	12
Elvins & Sons	20,870	0	0	9
Wilson & Sons	20,746	1	6	5
Pattinson & Son	20,475	0	0	—
Barnsley & Son	20,366	0	0	10
Bishop	19,977	0	0	—
G. Webb	19,475	0	0	18
Crowder	19,057	0	0	8
Johnson	18,757	0	0	7½

BURNLEY.

For the various trades required in the conversion into shops of property in Garden Street. Mr. G. H. Pickles, M.I.C.E., borough engineer.

Mullen & Durkin	£536	0	0
Clegg Bros.	531	16	6
G. Smith & Sons	522	10	0
J. Hanson	499	10	0
Bradshaw	498	10	0
Stanworth & Sons	490	0	0
B. Smith & Sons	490	0	0
Smith Bros.	484	0	0
H. Hanson	465	10	0
Heap	454	10	0
E. Armstrong & Sons (*accepted*)	447	0	0

All of Burnley.

IRELAND.

For construction of a storage reservoir and other works at Balrothery, for water supply for Malahide. Mr. P. H. McCarthy, architect, 30 Westmoreland Street, Dublin. Quantities by Architect.

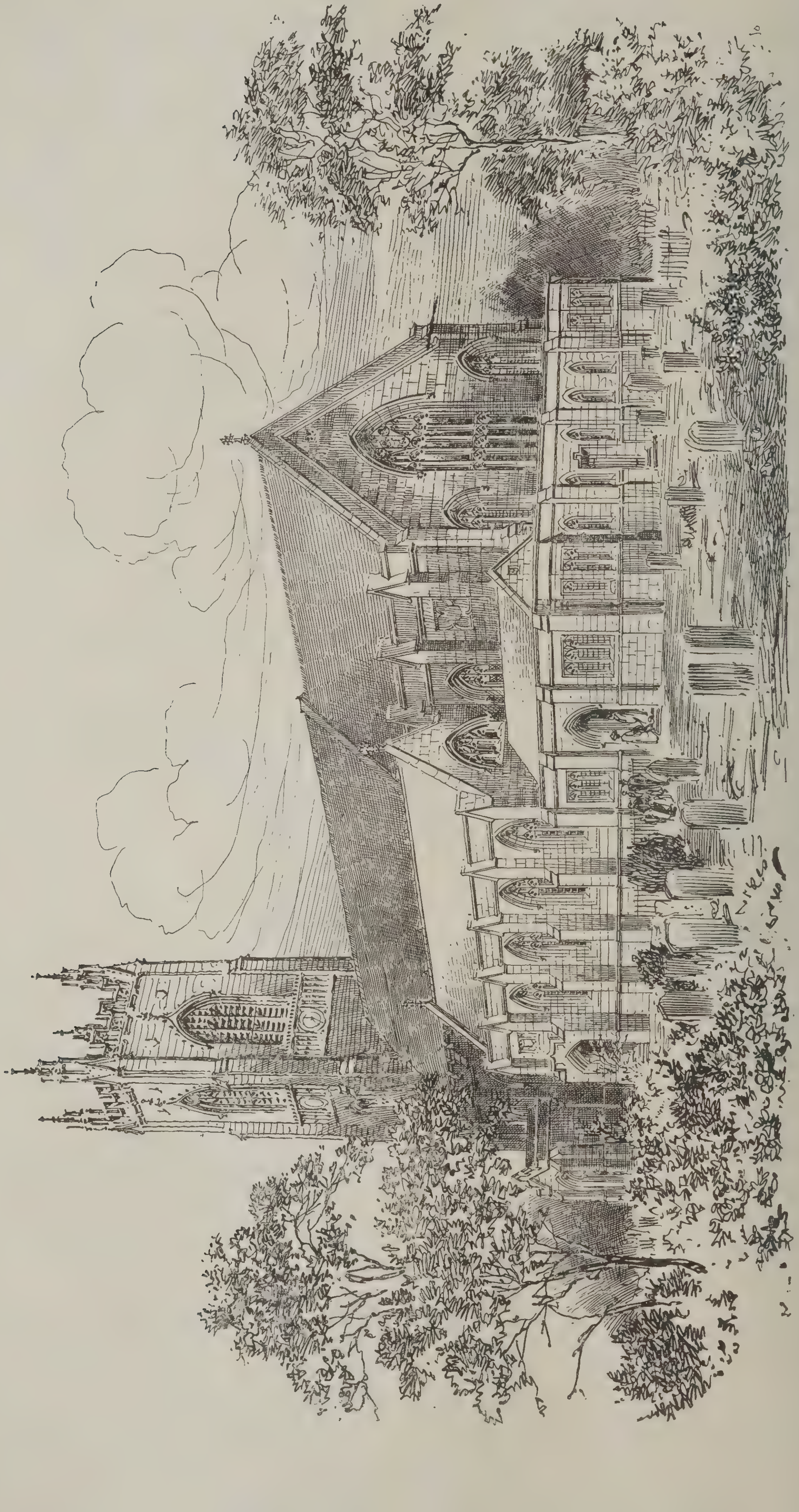
J. & T. Binns	£11,976	9	9
Fleming Bros.	11,452	7	1
H. & J. Martin	11,048	0	0
Callan	10,905	14	9
Hegarty & Gault	10,777	7	11
Bairds, Ltd.	10,428	16	3
Grainger Bros.	10,403	4	10
Blake	9,998	0	0
Collen Bros.	9,900	0	0
Martin & Co.	9,856	15	5
Graham	9,770	2	10
Clarke	9,741	1	6
McKee & McWally	9,616	7	9
J. Fitzpatrick, Kanturk, Co. Cork (*recommended*)	9,179	3	0
Engineer's estimate	9,318	0	0

LONDON.

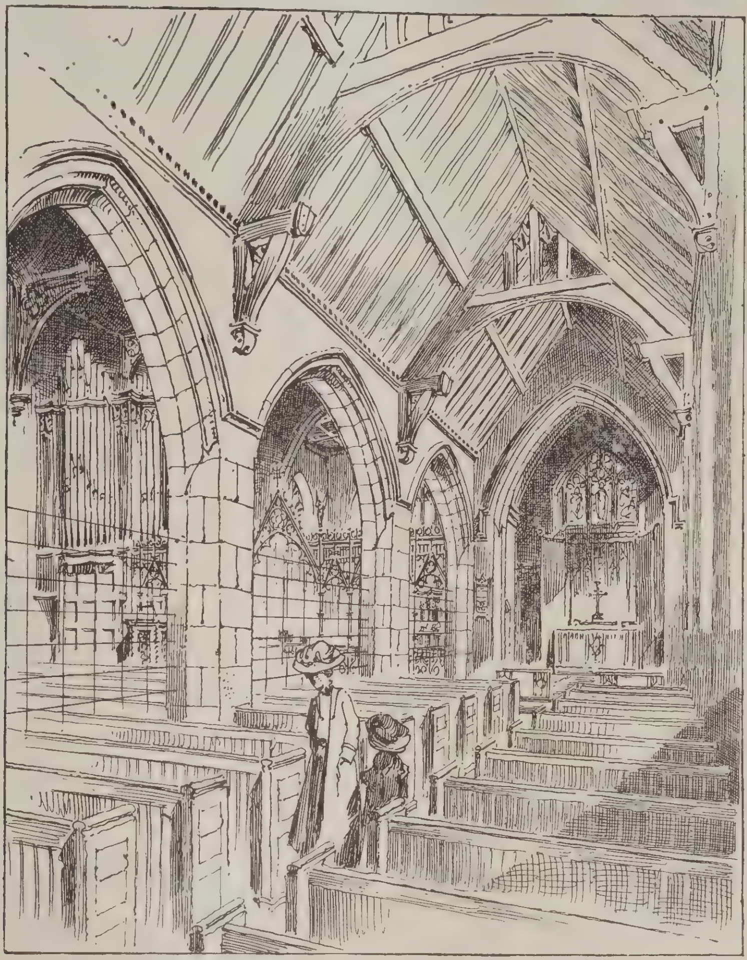
For building nurses' home and lunacy wards at Hackney Union Infirmary, Homerton, N.E. Mr. W. A. Finch, architect 76 Finsbury Pavement, E.C.

Carter, Ltd.	£24,408	0	0
Fitch & Cox	24,374	0	0
Leslie & Co.	23,507	0	0
Gluyas	22,900	0	0
Symes	22,500	0	0
Moss	22,302	0	0
Clark & Sons	21,990	0	0
Johnson & Co.	21,900	0	0
Rowley Bros.	21,783	0	0
F. & G. Foster	21,746	0	0
Monk	21,646	0	0
C. Wall, Ltd.	21,400	0	0
Webb & Co.	20,700	0	0
Lawrance & Sons, Ltd.	20,523	0	0
Kerridge & Shaw	20,340	0	0
Kirk & Randall	19,880	0	0
F. & T. Thorne, Poplar (*recommended*)	19,460	0	0

(*Continued on page 14.*)



ST. MARY'S PARISH CHURCH, WALTON-ON-THE-HILL, LANCASHIRE.



WALTON-ON-THE-HILL PARISH CHURCH.—NEW SIDE CHAPEL.

ST. MARY'S PARISH CHURCH, WALTON-ON-THE-HILL, LANCASHIRE.

This church ranks as the mother-church of Liverpool, and in the baptistery stands an interesting Saxon font belonging to the church, recorded in Domesday Book, and certainly existing in 1080, though probably for many years earlier. In 1094, Roger of Poictou made a grant to the Monastery of St. Martin-de-Sees, in Normandy, of the tithes of Walton parish, which then included the present parish of Liverpool, comprised ten townships, and extended over an area of forty square miles, West Derby being under its jurisdiction. The first rector whose name has been preserved to us was William de Kirkdale, 1240 A.D., succeeded by Richard de Wynwyck, 1350; St. Nicholas Church, Liverpool, being built in 1360. The presentation of the church was for a long period vested in the Monastery of St. Peter and St. Paul at Shrewsbury; but in the reign of Edward IV., 1461 A.D., the right was sold to the Molyneuxes, of Sefton, the first rector of Sefton of that name being one Richard, 1316 A.D., and again by them in 1739 to Thomas Clayton, for £540. The dates of the erection of the second and third churches are unknown but the nave was rebuilt in 1742, the chancel in 1810 and again in 1843, and the tower in 1831. The north and south galleries were pulled down, the oak rood-screen removed, and the church reseated in 1887. The present building is probably the third erected on the site. The plans—which have been accepted by the church council and confirmed by a vestry meeting also, for which the faculty has been obtained—are those of Messrs. Nagington & Shennan, in competition with two other selected architects. They include (*a*) a side chapel, opening through arches with a light iron grille into the main church, and affording accommodation for 100 persons as additional seat room, which is urgently needed, owing to the crowded state of the church; (*b*) clergy and choir vestries, with proper lavatories; (*c*) ambulatory, external to the east wall of the church and connecting the old clerk's vestry with the new; (*d*) an oak and glass screen separating the choir passages into the church from the chancel (the walls are of Woolton red stone, the material being used in the Liverpool Cathedral); (*e*) a reredos; (*f*) a new organ (in course of construction by Messrs. Henry Willis & Sons), to be placed on the north side of the choir instead of in the present position, with console in the choir stalls; (*g*) two new lancet windows in the sanctuary, north and south, to take the place of the stained glass removed from the windows which will be blocked by the new organ. These lancet windows will materially help to brighten the sanctuary, though with a subdued light. A lych-gate is also proposed and two more bells in the tower, making the peal eight in number.

The general contractor for the work is Mr. W. A. Gale, Ibstock Road, Bootle.

The following four candidates have been selected out of a large number of applicants for the position of borough engineer and surveyor of St. Helens in place of Mr. Broome, resigned, to appear before the Highways Committee:—Messrs. A. W. Bradley (Bury), S. H. Morgan (Prestwich), E. Harrison (Wellingborough), and A. E. Jackson (Manchester). The salary is £600 a year.

A special meeting of the South Shields Education Committee was held last week with reference to the tender for erecting school buildings at Stanhope Road. A letter was read from Mr. John L. Miller, of North Shields, asking for an additional sum of £156 5*s*. 6*d*. in connection with his tender. After discussion the committee rescinded their resolution accepting Mr. Miller's tender at £8,453 18*s*. 8*d*., and decided to accept the tender of Messrs. Sheriff & Sons, of South Shields, to do the work for the sum of £9,044 15*s*. 3*d*., this being the next lowest in the list.

Mr. J. Mackie Watson, Edinburgh, the architect chosen by the trustees to carry out the restoration of St. Magnus Cathedral, Kirkwall, for which a large sum of money was left by the late Sheriff Thoms, met with Kirkwall Town Council last week. Mr. Watson anticipates the work will be completed in the course of four years. The nave, which will first be dealt with, will take about two years to complete, and the parish congregation will meantime continue as hitherto to worship in the choir. Once the nave is completed, the congregation will occupy that part of the building pending the completion of the repairs on the choir, in which is embraced the more important part of the works.

SCOTLAND.

For the various works in connection with Aberhill new school. Mr. G. C. Campbell, architect.

R. Durie & Son, mason, Methil	£3,590	0	0
Matthew Wishart, joiner, Kirkcaldy	2,775	15	6
A. Hutchison, plasterer, Kirkcaldy	979	18	0
W. Nicoll, plumber, Buckhaven	872	0	0
Thomas Currie, slater, Kirkcaldy	433	7	9
London Asphalte Company, asphalter	265	9	10
Allan & Son, tile work, Edinburgh	263	17	6
J. C. Martin, painter, Methil	231	16	3
Barnett & Morton, steel work, Kirkcaldy	158	12	3
Coutts & Son, glazier, Kirkcaldy	112	16	0

SHEERNESS.

For erection of 14 houses. Mr. Harvey, architect, Sittingbourne.

Richardson	£4,960	0	0
Spinner	4,873	0	0
Moore & Roberts	4,562	0	0
Myall Bros.	4,500	0	0
Fryd	4,489	0	0
Roads	4,456	7	0
Skinner	4,358	0	0
Osborne	3,920	0	0
Sone	3,818	10	0
L. Seager, Sittingbourne (*accepted*)	3,762	0	0

WALES.

For the construction of the Cwmfelinfach new road and other appurtenant works, for the Mynyddislwyn Urban District Council. Mr. E. Watkin Edwards, surveyor, Pontllanfraith.

Cox	£8,049	15	2
Evans & Merry	6,771	0	0
Jones	6,689	8	5
Brebner & Co.	5,583	4	11
Underwood & Bro.	5,735	9	3
Pembro	5,542	15	3
Willis	5,401	15	7
Barnes & Chaplin	5,386	18	0
G. Morgan	5,317	3	4
Phillips	5,254	18	9
G. Smith	5,226	5	10
Richards	5,054	18	10
J. Morgan	4,980	17	2
Jenkins	4,898	8	10
Sutherland	4,797	10	8
H. Smith	4,733	2	2
Packer	4,609	8	3
D. Thomas, Ystradmynach (*accepted*)	4,580	11	3
Webb & Sons	4,433	13	7
Surveyor's estimate	4,900	0	0

For erection of a public hall at Ammanford. Mr. D. Thomas, architect, Ammanford.

D. Howells & Son	£4,156	0	0
Jones Bros.	3,350	0	0
Thomas	3,333	0	0
Evans	3,264	0	0
Michael & Sons	3,210	0	0
John & Co.	3,130	0	0
Williams	3,111	0	0
Evans	2,987	0	0
Wilkins & Sons	2,944	0	0
Callard	2,835	15	11
B. & E. Jones, Penybank (*accepted*)	2,760	0	0

WARWICK.

For erection of a pair of children's homes and appurtenant buildings to accommodate 30 children and staff at Worwick, for the Guardians. Mr. F. G. Cundall, M.S.A., architect, Leamington Spa.

T. Bailey	£2,410	0	0
Sheasby & Hobbis	2,275	0	0
Smith & Sons	2,270	0	0
Kimberley	2,233	0	0
Bowen	2,186	0	0
Dawson	2,153	0	0
Dawkes	2,150	0	0
Roe	2,044	0	0
Gathercole	2,000	0	0

WELLS.

For additions and alterations at the boys' school. Mr. A. J. Pictor, architect, Bruton.

Broad & Sons	£2,850	0	0
Sheppard	2,318	0	0
Webb	2,298	0	0
Webb	2,263	0	0
Chancellor & Sons	2,120	0	0
Fursland	2,100	0	0
Dunthorn	2,098	0	0
Pittard & Son	1,988	0	0
Ford & Son	1,950	0	0
Bryer & Junr.	1,850	0	0
Poole	1,849	0	0
Stockham, Bridgwater (*accepted*)	1,685	0	0

WITHYCOMBE.

For the construction of four houses at Withycombe, Devon. Mr. G. Beavis, architect, Exmouth.

Lang	£799	0	0
Ponsford	788	10	0
Greenaway & Son	730	0	0
Greenaway	705	17	6
Densham, Victoria Road (*accepted*)	600	0	0

All of Exmouth.

WOODKIRK.

For the restoration and reseating of the Woodkirk Church, near Dewsbury. Messrs. Hoare & Wheeler, architects, 11a Orchard Street, Portman Square, London, W.

Marsh, Jones & Cribb	£1,213	16	2
Mercer	945	10	0
Binks & Sons	869	0	0
Hatch & Sons	855	0	0
Spensely	833	6	0
Snaith & Son	818	0	0
Fearnley & Sons, Bradford (*accepted*)	766	15	0
Akeroyd & Son	737	0	0
Taylor & Co.	718	0	0

WORKSOP.

For erection of 28 houses in Kilton Road, for the Co-operative Society.

Doncaster	£6,250	0	0
McCarrick	5,688	0	0
Rowsell	5,650	0	0
Ilett & Sons	5,530	0	0
Chadwick	5,495	0	0
Bowles & Son (*accepted*)	5,400	0	0

The Halifax Corporation Improvement Committee have decided to schedule Illingworth and Ovenden, and Warley and Pye Nest, areas under the town-planning scheme.

It is proposed to build a new parish church at Potter's Bar, to cost about £8,000. The scheme provides for accommodation for 400 persons, and an extension for 760. The site of the new church is on the vicarage land.

Mr. Alexander Walker, city assessor, has prepared a statement as to the number of unlet dwelling-houses in Glasgow. The total, 19,055, is below that of 1910, which stood at 19,715. Unlet shops, offices, &c., total 4,608, as compared with 4,289 last year.

The Wallasey Education Committee are considering proposals for the provision of 2,600 extra places. It is recommended by the Director of Education that a site of at least 1¾ acres be secured in the Liscard area, and that a school should be erected as soon as possible for 500 junior and 400 senior scholars, and capable of extension. He further recommends that, as a school must shortly be erected to take the place of the Wesleyan School at Egremont, one for 1,000 children should be built, together with a building for 600 higher elementary scholars. A site for a new school has already been obtained in Mount Pleasant Road, New Brighton, and it is advised that further sites should be secured at Seacombe and in the area between St. George's Road and Poulton Schools.

The Italian Government propose to expend nearly two millions sterling on the erection of Government offices at Messina, Reggio, Calabria and Palmi, during a period of ten years from 1912. The *Gazzetta Ufficiale* (Rome) also contains a notice to the effect that tenders will be received at the office of the "Direzione del Genio Militare," Turin, up to September 21, for the construction of a building for an artillery and engineering school. The upset price is put at £100,000.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit full particulars to Room 6, Imperial Buildings, Ludgate Circus, for insertion in this weekly list.)

ENGLAND.

BERKSHIRE.

Hungerford.—Coronation Memorial Hall (£600).

Reading.—Tuberculosis Sanatorium, Valley of Lambourne.

CHESHIRE.

Macclesfield.—Christ Church Schools improvements.

Technical School extensions.

CORNWALL.

Camborne.—North Cliff Sewerage scheme.

Penzance.—Council School.

St. Stephens.—Water Supply scheme.

CUMBERLAND.

Aspatria.—Caretaker's house at the School. Mr. T. Maxwell, contractor.

North-West Cumberland Water scheme (£10,000). Mr. J. Graham, engineer.

Fusehill.—Workhouse Infirmary alterations. Mr. Armstrong, architect.

Langholm.—Parish Church Hall improvements.

Langwathby.—Water supply scheme.

Mardale.—Water supply scheme.

Ruckcroft.—Water supply works. Mr. Glaister, contractor.

DEVONSHIRE.

Ilfracombe.—Three Towns Church extension.

Newton Abbot.—Workhouse woodshed, cold chamber, and weigh-bridge. Mr. S. Segar, architect.

Plympton. Shop and premises in Fore Street, Ridgeway. Messrs. Carder & Carder, architects.

ESSEX.

Billericay.—Workmen's cottages.

Burnham.—Working Men's Institute: additions. Mr. G. Gould, contractor (£225).

Epping.—Cottage homes (£5,000).

Workhouse Infirmary (£5,000).

Rochford.—Water supply extension scheme (£10,000).

Westcliff-on-Sea.—Water supply extension scheme.

Wickham Bishops.—Parish Room (£400).

HAMPSHIRE.

Liss.—Sewerage scheme. Mr. Chambers Smith, engineer.

KENT.

Marden.—Sewerage works.

St. Mary-in-the-Marsh.—Parish Church restoration (£600).

Sheerness.—Eastern Pier.

LANCASHIRE.

Blackpool.—Central Pier pavilion.

Kearsley.—Church schools.

Manchester.—Suburban branch (Carnegie) libraries at Chorlton-cum-Hardy, Didsbury, and Withington (£15,000).

Sale.—Baths. Mr. W. H. Mitchell, A.R.I.B.A., architect.

LEICESTERSHIRE.

Castle Donington.—Sewerage scheme.

Thurmaston.—Wesleyan Chapel improvements.

LINCOLNSHIRE.

Woodhall Spa.—Cottage Hospital.

MIDDLESEX.

Ealing.—North Ealing Council Schools. Mr. Charles Jones, M.I.C.E., Borough Surveyor.

MONMOUTHSHIRE.

Wattsville.—Mixed and Infants' School. Mr. J. Bain, F.R.I.B.A., architect.

NORFOLK.

Aylmerton.—Parish Church restoration.

Thetford.—Workmen's dwellings, Bury Road.

NORTHAMPTONSHIRE.

Badby.—Public elementary school. Mr. J. T. Blackwell, architect.

NORTHUMBERLAND.

Elsdan.—Parish Church restoration.

Tynemouth.—Seaton Delaval sewerage extension works. Mr. W. Coxon, contractor.

Wooler.—Parish Church additions and restoration (£4,000).

NOTTINGHAMSHIRE.

Mansfield Woodhouse.—Senior mixed school for 520 children, with cookery, laundry and manual training rooms. Mr. J. Greenwood, contractor (£7,527).

Nottingham.—St. Mary's Church: chancel alterations.

Workhouse alterations (£200).

Rainworth.—School for 600 children.

Selston Bagthorpe.—New school for 250 children. Mr. J. Greenwood, contractor (£3,220).

Existing school alterations and improvements.

Stanton.—Club room. Mr. G. Adams, contractor.

Worksop.—Victoria Hospital extension. Mr. J. Doncaster, contractor (£2,012).

SOMERSETSHIRE.

Bathealton.—School extension and repairs.

Bridgwater.—West of England Carriage Works: extensive alterations.

Taunton.—School: two masters' houses and two hostels in one block (£5,800). Mr. F. W. Roberts, F.R.I.B.A., architect; Messrs. W. Potter & Sons, contractors.

STAFFORDSHIRE.

Armitage.—Parochial School: rebuilding and enlargement (£1,000).

Cheadle.—Isolation Hospital: convalescent ward. Mr. F. T. Inskip, architect.

Foxt.—Water supply scheme (£800).

SUFFOLK.

Harleston.—Sewerage scheme.

Southwold.—Mortuary at the Cottage Hospital.

Stowmarket.—Public elementary school for 500 children.

SURREY.

Epsom.—Sewerage extension works. Mr. Pratley, Council surveyor (£1,150).

SUSSEX.

Brighton.—St. Matthias Church.

Eastbourne.—Head Post Office.

Hastings.—Medical Baths.

Secondary school for girls (£6,000).

Reigate.—Victoria Almshouses new block (three houses).

Worthing.—Hospital out-patients' department (£2,760).

YORKSHIRE.

Baildon.—Sewerage scheme. Mr. J. Myers, Council surveyor.

Bridlington.—N.E. Railway Station. Mr. W. Bell, F.R.I.B.A., architect.

(Correction) Waterworks extension (£14,000).

Doncaster.—Sewerage scheme for Adwick-le-Street, Owston and Skellow. Messrs. D. Balfour & Son, engineers.

Ecclesall Bierlow.—Union Homes, laundry, &c., at Fulwood. Mr. A. F. Watson, F.R.I.B.A., architect.

Kilburn.—Reading room.

Maltby.—Council schools. Mr. W. A. Millard, architect.

Malton.—Housing scheme.

New Earswick.—Model village. Messrs. Parker & Unwin, architects.

WALES.

Aberedw.—Farm buildings at the Court Farm. Mr. T. Roderick, architect.

Colwyn Bay.—Concert Hall for 2,000 people.

Denbigh.—Howell's School: two new temporary class rooms.

Gwaun Cae-Gurwen.—Carmel Congregational Church: alterations, &c. Mr. D. Morgan, architect.

Llandudno.—Holy Trinity Church: new chancel and chapel.

Nantgarw.—Two shops and a house. Mr. W. D. Thomas, architect.

Neath.—Baptist Church.

Porthcawl.—Water supply scheme (£10,500).

Ruthin.—Union Workhouse Infirmary. Mr. F. A. Roberts, architect.

SCOTLAND.

Aberhill.—School (£9,600). Mr. G. C. Campbell, architect.

Connel Ferry.—Falls of Lora Hotel. Mr. J. G. Falconer, architect.

Crieff.—Liberal club premises.

Glasgow.—Church hall and offices, Harvie Street and Dalmarnock Road. Mr. J. Smellie, contractor.

Haggs Castle Golf club-house, Dumbreck Road.

Self-contained villas, Kelvinside.

Greenock.—Four-storey tenement, Belville Street.

Logierait.—Public School, Ballinluig: additions and alterations (£950).

Paisley.—Good Templars' Hall improvements.

IX CONGRES INTERNATIONAL DES ARCHITECTES.

THE following is the official programme of the Congress:—

Lundi 2 octobre, 9 heures à midi.—Séance du Comité permanent et du Comité général d'organisation pour la nomination de la présidence et pour ordonner les travaux du Congrès.

2 heures à 3.—Visite de tous les congressistes au tombeau des Rois d'Italie et de Raphaël au Panthéon.

4 heures à 7.—Visite au monument de Victor Emmanuel II.

7 heures ½.—Dîner offert par le Comité d'organisation aux Délégués des Gouvernements étrangers et aux membres du Comité permanent.

10 heures.—Réception offerte par les Associations artistiques de Rome, d' accord avec le Comité d'organisation, aux congressistes dans les salons de l'Association Artistique Internationale.

Mardi 3 octobre, 10 heures.—Réunion des relateurs des divers thèmes au Château S. Ange.

De 9 heures à midi.—Visite aux monuments et aux expositions.

Midi ½.—Déjeuner offert par le Comité d'organisation aux Délégués des Associations étrangères et nationales.

De 3 heures à 5.—Séance d'inauguration au Capitole, dans la salle des Horaces et des Curiaces.

10 heures.—Réception offerte par le Syndic au Capitole.

Mercredi 4 octobre—de 9 heures à midi.—1ère Séance du Congrès au Château S. Ange, pour les discussions des thèmes.

midi ½.—Invitations privées éventuelles.

de 2 heures à 7.—Visite aux monuments et aux expositions.

Jeudi 5 octobre—de 9 heures à 11.—2ième Séance du Congrès (suite des discussions).

De 11 heures à midi.—Conférence de Mr. le professeur Corrado Ricci, directeur Général des Antiquités et des Beaux-Arts sur les Forums Impériaux.

2 heures à 5.—Visite aux monuments et aux expositions.

5 heures à 8.—Garden Party.*

Vendredi 6 octobre.—Excursions facultatives dans les environs (voir la liste qui s'y rapporte).

Soirée libre pour les éventuelles réceptions des Ambassades étrangères aux Architectes de leurs pays.

Samedi 7 octobre, de 9 heures à 11.—3ième Séance du Congrès (suite des discussions).

De 11 heures à midi.—Conférence du professeur Stübben sur les plans régulateurs.

2 heures à 7.—Visite aux monuments et aux expositions.

10 heures.—Réception.*

Dimanche 8 octobre.—Ottobrata avec déjeuner lunch offert par le Comité d'organisation à tous les congressistes.

de 4 heures à 9 heures.—Réception.*

Lundi 9 octobre, de 9 heures à midi.—4ième séance du Congrès (suite des discussions et des conférences).

de 2 heures à 7.—Visite aux monuments et aux expositions.

Mardi 10 octobre,—de 9 heures à midi.—Séance de clôture du Congrès.

de 2 heures à 7.—Visite aux monuments et aux expositions.

8 heures.—Banquet final (à cotisation maximum du prix 20 fr.).

Mercredi 11 et jeudi 12 octobre.—Excursions facultatives dans les environs.

(voir la liste qui s'y rapporte).

Excursion facultative à Venise (Départ de Rome le 12 au soir).

Vendredi 13 octobre, 2 heures.—Réunion des Congressistes au palais des Doges, visite au Campanile di S. Marco.

Samedi 14 octobre.—Excursion à l'Estuario veneto offerte par le Municipe de Venise.

Dimanche 15 octobre.—Visite aux monuments.

On donnera les indications relatives aux autres fêtes, au commencement du Congrès.

Les invitations seront toutes personnelles, cependant messieurs les Congressistes qui voudront en jouir devront avoir soin de se faire remettre les cartes d'invitations en même temps que leur carte d'identité.

The following excursions have been arranged:—

I., Ostia (from 25 to 105 persons); II., Subiaco (from 25 to 80 persons); III., Orvieto (from 25 to 50 persons); IV., Tivoli and Villa Adriana (from 25 to 150 persons); V., Anagni and Ferentino (from 25 to 50 persons); VI., Corneto (from 25 to 50 persons); VII., Castelli Romani (from 25 to 80 persons); VIII., Viterbo (from 25 to 200 persons); IX., Cori, Fossanova, Ninfa (from 25 to 50 persons).

The programme gives the following "avvertissements":—

I. Les excursions sont confiées aux soins de la compagnie Chiari-Sommariva de Milan qui en répond directement.

II. Messieurs les Congressistes sont vivement priés d'envoyer à notre Comité (et cela pas plus tard que le 15 septembre) le montant de la cotisation pour les excursions auxquelles ils veulent prendre part, et en indiquant avec précision le nom et le jour des excursions qu'ils auront choisies, ainsi par exemple:

1.° Je vous prie de m'inscrire aux excursions suivantes:

6 octobre	11 octobre	12 octobre
Ostia	Anagni	Castelli Romani.

2.° Je vous prie de m'inscrire aux excursions suivantes:

6 octobre	11 octobre	12 octobre
Viterbo	Cori	Corneto

Les demandes qui arriveront en retard ne seront admises que s'il y aura encore des places disponibles.

III. La cotisation payée ne sera rendue que dans le cas où le Comité devrait supprimer l'excursion relative.

IV. La compagnie Chiari-Sommariva (Agence officielle des chemins de fer de l'Etat-Bureaux: Piazza Venezia et Castel St. Angelo), sur demande des Congressistes et en dehors de toute organisation du Comité du Congrès, se charge d'organiser les excursions suivantes:

1. Roma—Napoli—Pompei—Sorrento—Capri.
2. Roma—Napoli et alentours.
3. Roma—Firenze—Venezia—Lago di Garda—Milan et Laghi Lombardi.
4. Roma—Pisa—Genova—Torino.

La durée, l'itinéraire détaillé et les prix de ces dernières excursions seront établis en temps opportun.

(*) Les détails de ces réceptions seront indiqués à l'ouverture du congrès.

FESTIVAL OF EMPIRE AWARDS.

THE following are a few of the jurors' awards to exhibitors at the Festival of Empire and Imperial Exhibition at the Crystal Palace, 1911:—

Arts and Crafts Section: Gold Medal to Messrs. Walker & Hall (silver and electro-plate); Silver Medal to Quadruplex, Ltd.

Building Trades Section: Three Grand Prix to Mr. H. W. Mathews for (*a*) design of grand band stand in Empire Avenue and arrangement of kiosks adjacent thereto; (*b*) general laying-out of grounds of the Crystal Palace as an exhibition, and the disposition of the buildings, &c.; and (*c*) general planning of interior of Crystal Palace for the purposes of an exhibition. Gold Medal to Messrs. Sissons Bros.

Sports Section: Grand Prix to E.C. Powder Co. (smokeless sporting powder).

Engineering Section: Gold Medal to Messrs. Parsons & Sons (Endelline Enamel).

Horticultural Section: Diplome d'Honneur to the Bromsgrove Guild (garden ornaments). Gold Medal to Messrs. Barford & Perkins (rollers).

Chemistry Section: Grand Prix to Messrs. Newton, Chambers & Co., Ltd. (Izal disinfectant specialities), and Jeyes Sanitary Compounds Co., Ltd. (disinfectants, soaps, &c.).

THE plans for the reconstruction of the Glasgow Corporation Galleries in Sauchiehall Street came before the Glasgow Dean of Guild Court last week, on a petition by the Corporation for a lining to erect new buildings in Renfrew Street. The petition was granted. It is not expected that the operations will be completed before the beginning of 1913. The reconstruction was sanctioned some time ago by the Corporation, who purchased property in the adjoining streets to permit of the extension.

THE Association of Italian Artists intend holding their seventh exhibition of pictures, statuary, &c., at the Strozzi Palace, Florence, from November 1911 to June 1912. Artists desirous of being represented should note that the latest date on which intimations will be accepted is October 1 next, and works may be forwarded from that date till October 15. For conditions of admission and further information, application should be made to the Director of the Association of Italian Artists, Palazzo Strozzi, Florence.

NEW PATENTS.

This list is specially compiled for *The Architect* by Messrs. Rayner & Co., Registered Patent Agents, of 37 Chancery Lane, London, from whom all information relating to patents, designs, trade marks, &c., can be obtained gratuitously.

Latest Patent Applications.

18,757. Richard Wehse. Device for securing hinge-windows in open position, August 21.

18,826. Charles William Adey. Window-sash fasteners, August 22.

18,857. Wilhelm Simonsson. Measuring instruments, August 22.

18,860. John Cosstick. Roof tile for verges and gables, August 22.

18,883. Humphrey Thomas Logan & Phillip Egerton Hubbard. Ferro-concrete structures, August 22.

18,951. Arthur George Grice and George Anderson & Co. (1905), Ltd. Apparatus for stone and marble cutting, and for like purposes, August 23.

19,041. Richard Henry Hillman. Automatic closing apparatus for doors, gates, casements, and the like, August 24.

19,060. Joseph Royle, Thomas Wilcock, William Mercer, and Martha Kershaw. Ventilating apparatus, August 25.

Specifications Published this Week.

20,303. Williams. Window and like stays.

21,655. King. Glazing or supporting bars for glass pavement prisms, and the like.

8,581. Stoye. Scaffolding frames.

Printed copies can be obtained from Messrs. Rayner & Co. at the published price of 8*d*.

OPENINGS FOR BRITISH TRADE IN AUSTRIA-HUNGARY.

The following notices which appear in the *Board of Trade Journal* are extracted from the "Zentral-Anzeiger für das öffentliche Lieferungswesen" (Vienna) of August 24 and 27:—

The communal council of Mostar, Bosnia, has decided upon the construction of a new water supply aqueduct at a cost of £25,000, and also the erection of a market hall.

The city authorities of Budapest have decided to erect a water tower, with a cubic contents of 200,000 cubic metres, at Istenhegy, and to bore two wells and construct a cistern and a syphon conduit in connection with the Ujlak water works. Tenders will be received by "Dr. Johann Buzáth, IV. Városház-utca 16," Budapest, up to September 15. Plans may be seen at the office of the Water Works Directorate.

A syndicate, with a capital of 1,600,000 kr. (about £66,700), has been formed at Pilsen, with the Prague advocate Svoisik at its head, for the purpose of erecting a large brewery at Tremoschna, near Pilsen.

The Budapest Commission for the construction of municipal dwellings has decided upon the erection this year, at a cost of 5,000,000 kr. (about £208,000), of eight five-storied buildings, to contain 850 two- and three-roomed dwellings. Schools are also to be erected at a cost of 5,000,000 kr.

A hydropathic establishment, with 100 rooms, is shortly to be constructed at Budapest. According to the plans prepared by Eduard Dvorak, the cost will be about £66,700.

A company under the name of the Helenenhof Imperial Hotel Company, has been formed at Carlsbad by Lord Westbury, of London, Alfred Schwalb, of Carlsbad, Messrs. Wayss and Freytag, Meinong, and Portois & Fix, of Vienna, for constructing and managing an hotel at Carlsbad, and for obtaining concessions for the construction of light railways. The company has a capital of 4,000,000 kr. (about £167,000), which can be raised to 11,000,000 kr.

CORRESPONDENCE.

Fire at Park Royal.

Sir,—With reference to the destruction by fire of our works at Park Royal on the 29th ult., as reported in the Press, we desire to inform you and all inquirers that we have transferred our staff to a large and fully equipped factory at Highgate, where we are already at work, and our contracts will only suffer a very slight delay.—Yours faithfully,

Berners Street, London, W.: H. C. Cleaver, Ltd.
September 6, 1911.

VARIETIES.

The will of Mr. Frederick Goddard, aged 63, of High Street, Eton, plumber, has been sworn under £32,771.

The Carnoustie Town Council have agreed to borrow £5,500 for the construction of a main outfall sewer.

The Guardians of the York Union have applied to the Finance Committee of the City Council to lend them the sum of £14,294, which they are authorised to borrow for building extensions at the York Workhouse.

The Local Government Board have informed the Billericay (Essex) Rural District Council that they were prepared to consider proposals for the erection by the council of timber-built cottages for the working classes, provided such proposals were in accordance with local by-laws.

Mr. Thomas Henry Johnson, architect, Doncaster, summoned on the 4th inst. for a breach of the town's by-laws, said a new clerk of his sent the wrong plans to the contractor. A fine of 50*s*. and costs in each of two cases was imposed by the Doncaster magistrates.

Messrs. W. H. Dorman & Co., Ltd., engineers, Stafford, are negotiating the purchase from the Stafford Corporation of five and a-half acres of land at the Lammascotes on which to erect new works. The necessary plans are in course of preparation.

Messrs. Waters & Coombes (successors to Chancellor & Sons), auctioneers and estate agents, who disposed of the Star and Garter Hotel at Richmond at a very satisfactory figure for the freehold, have been instructed to prepare designs for alterations and additions. It is anticipated that the hotel will be open early next year.

The Sunderland Education Committee on Monday decided to recommend the purchase of a site on the Ford estate, comprising over twelve acres, at a cost of £7,800, for a new Day Training College. It was reported that the Board of Education would consider the question of a withdrawal of the proffered building grant unless a definite scheme were submitted.

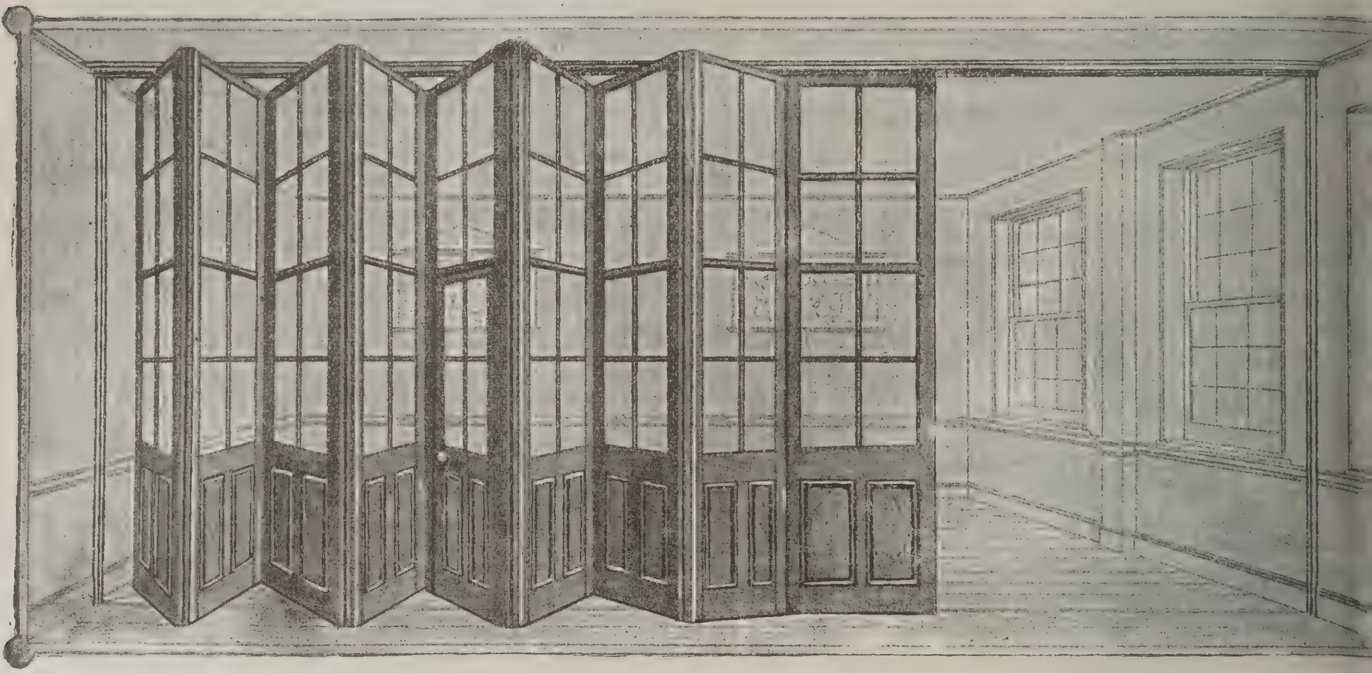
The Estate and Property Committee of the Newcastle Corporation on Monday received an application from a builder for 8½ acres of land east of the Model Cottages at Walker, and agreed to grant it, subject to the approval of the City Council and the observance of certain conditions. The maximum period of development is four years. Semi-detached dwellings are to be erected on the site.

It has been found necessary to undertake extensive repairs to the spire of the parish church of Market Harborough. Messrs. Stockdale Harrison & Sons, architects, Leicester, report that the summit of the spire is in a dangerous condition for some twelve or fifteen feet down, the stonework having bulged out and caused this length to be thrown out of the perpendicular. This reconstruction and other essential work will cost £160.

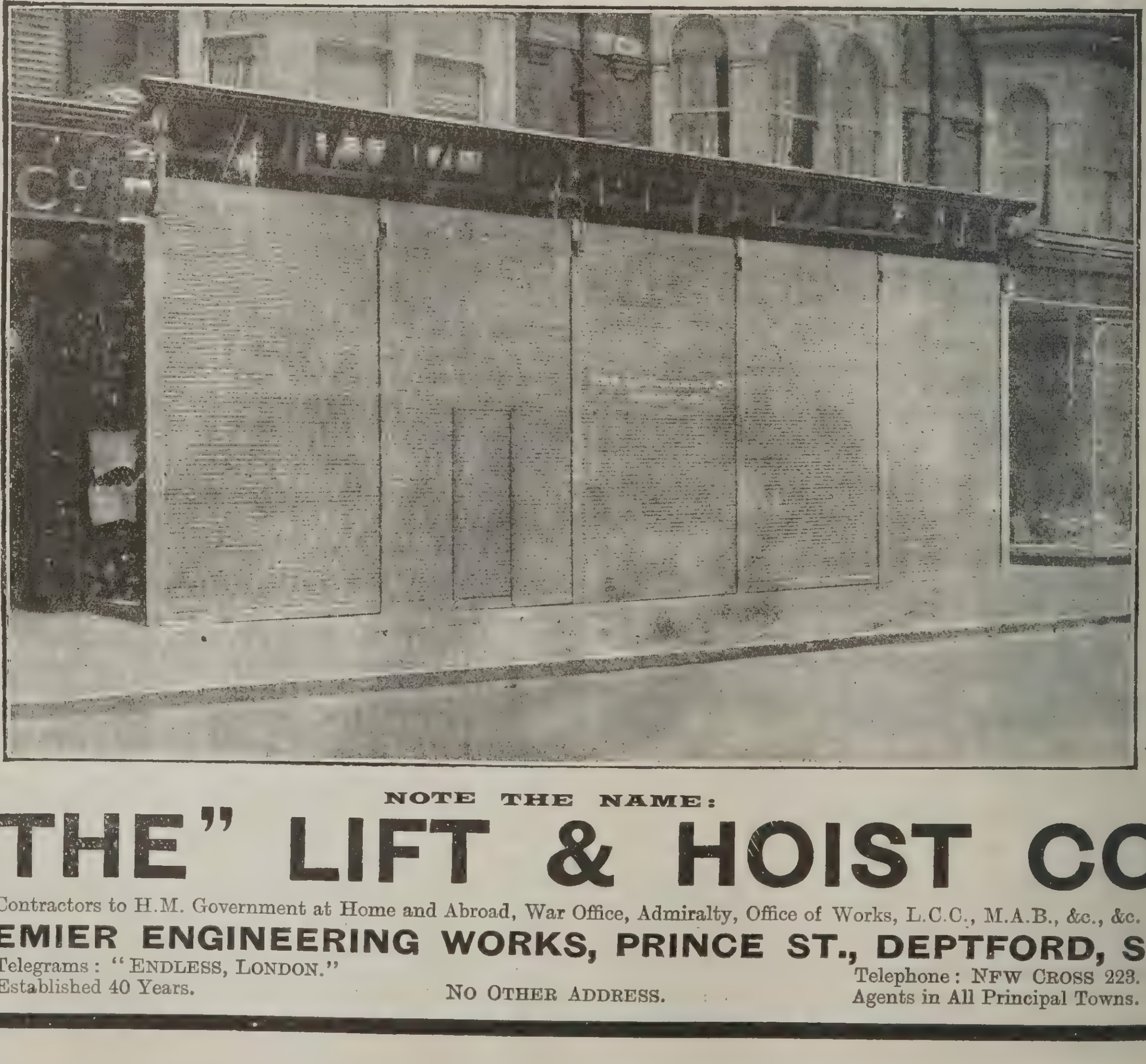
The City Council of Newcastle declined on Wednesday the provisional bequests of the late Mr. J. A. D. Shipley, a Newcastle solicitor, of £30,000, to build an art gallery, which, it was prescribed, should contain pictures collected by the testator. The expert advisers reported that the collection did not contain a single work of first-class merit. If the bequest had been accepted a portion of the land immediately to the north of the Laing Art Gallery in Higham Place, purchased for Public Library extension, would have been appropriated as a site for the proposed Shipley Gallery.

For the man whose business takes him from London to Doncaster for the whole of the race week, special arrangements have been made by the Great Central Railway Company enabling him not only to accomplish the journey in comfort, but at a very cheap fare. On Monday, September 11, a special luncheon car express will leave Marylebone at 1.15 p.m.; return fares, 1st class, 32*s*., 3rd. class 16*s*. On Wednesday and Friday City men and others wishing to see the St. Leger and Cup races may journey to Doncaster and back for 34*s*. 6*d*. first class, and 19*s*. third class, including table d'hote luncheon on the outward journey and dinner on the return. To secure accommodation on the train early application should be made to Marylebone Station Booking Office. The trains are timed to leave Marylebone on St. Leger day at 8.40 a.m., and Cup day 8.25 a.m. Cheap excursion tickets are also available by these trains, 28*s*. first class, 14*s*. third class. For the convenience of passengers, and to avoid the crowd at Doncaster Station, these trains will arrive at and depart from St. James's Bridge Station, from which place electric cars run direct to the course. In this outing the railway company provides everything contributing to the enjoyment and comfort of the visitor from London.

Folding Partitions



Revolving Shutters



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AGENTS FOR AMERICA.

The International News Co., 5 Bream's Buildings, Chancery Lane, London, England, and New York.

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NOTICE TO ADVERTISERS.

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2* p.m. *on Thursdays.*

COMPETITIONS OPEN.

Athens.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l.* A first prize of 800*l.*, and a second prize of 320*l.* will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Barnsley.—Oct. 7.—The Town Council invite competitive drawings for a proposed extension of public baths, including a swimming bath, Russian and vapour baths, and slipper baths, in connection with the existing public baths in York Street and Race Street, Barnsley. The Town Council offer premiums of £50, £30 and £20. Mr. J. H. Taylor, M.I.C.E., borough surveyor, Manor House, Barnsley.

Bristol.—Oct. 31.—The Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

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Coseley.—Oct. 12.—Plans for school for 200 children for the Education Committee, at Dimmock Street, Parkfield, Coseley, W. Dudley. Conditions, one guinea, returnable on receipt of plans. Mr. Fred J. C. Poole, Secretary, Education Offices, Coseley, near Bilston.

Evesham.—Oct. 7.—The Rural District Council invite designs, with estimates of cost, for laying out a building site at Broadway and the erection thereon of 30 cottages, under the Housing and Town Planning Act, 1909. The architect whose design is accepted will be appointed to carry out the work at an inclusive fee of 5 per cent. Deposit £1 1*s*. Mr. E. H. Wadams, Clerk, Union Offices, Evesham.

Halifax.—Oct. 7.—The Tramways Committee invite designs and tenders for tramway shelters. Particulars, with tracings of sites, can be obtained on application to the Borough Engineer, Town Hall, Halifax.

Hastings.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1*s*. deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

London.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1*s*., which will be refunded on receipt of a bona-fide design or return of conditions within one month of receipt. All particulars from Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

Murton.—Oct. 4.—The Easington Rural District Council invite plans for three separate types of houses, of which it is proposed to build 100 at Murton Colliery, Durham. The houses to be in streets of twenty with 16 ft. back streets, 18 ft. frontage, and garden ground in front of each house to a depth of 30 ft., an earth closet and outside pantry to be provided for each house. Strict compliance with the Council's by-laws and the Local Government Board regulations will be required. The following are the types of houses:—Type A.—28 ft. gable, three bedrooms, one living room, one sitting room, scullery (offshot), with kitchen range and bath. Type B.—25 ft. gable, three bedrooms, one living room, scullery, with kitchen range and bath. Type C.—Two bedrooms, one living room and scullery, with kitchen range and bath. Appearance and economy of structure will be considered. The successful candidate will receive 2½ per cent. commission upon the net cost of buildings when erected. No other remuneration will be paid. Mr. J. M. Longden, Council Offices, Easington, Castle Eden.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Wales.—The Cardiff Education Committee invite designs and estimates in competition for a technical institute proposed to be erected in Cathays Park. Mr. J. S. Gibson, architect, will act as assessor. Full particulars will be sent to architects on application, accompanied by a deposit of £2 2*s*., which will be returned to all architects submitting bona-fide designs or who return the conditions within six weeks. Mr. J. Jackson, director of education, Education Offices, City Hall, Cardiff.

CONTRACTS OPEN.

Aspatria.—Sept. 26.—For erection of two dwelling-houses in Station Road. Mr. J. Henney, architect and surveyor, 39 Senhouse Street, Maryport.

Bawnboy (Ireland).—Sept. 22.—For erection and fencing of 45 single labourers' cottages at Bawnboy. Mr. Townsend, architect, Carrickboy, Ballyshannon.

Bempton.—Sept. 22.—For erection of a Council school for 112 children and teacher's house, for the East Riding of Yorkshire County Council. Deposit £1 1*s*. The Building Surveyor, County Hall, Beverley.

Biggleswade.—Sept. 30.—For erection of new hall and Liberal Club premises in High Street. Deposit £1 1*s*. Mr. W. C. Owen-Jones, architect, Biggleswade.

Birmingham.—Oct. 3.—For the Finishings (second) Contract at the Telegraph Stores, Block C. Deposit £1 1*s*. Mr. J. Tosh, H.M. Office of Works, Pinfold Street, Birmingham, or H.M. Office of Works, Storey's Gate, London, S.W. (See advertisement.)

Bradford.—Sept. 21.—For the construction of a chimney shaft 200 feet high, built of brickwork, with a sandstone masonry face, at the Esholt Sewage Disposal Works. Deposit £1 1*s*. Mr. J. Garfield, A.M.I.C.E., Esholt Hall, near Shipley (station, Apperley Bridge, Midland Railway).

Brentwood.—Sept. 18.—For the inside repairing and repainting of cottages, for the Brentwood Urban District Council. Mr. A. J. Meeson, Town Hall, Brentwood.

Bridlington.—Sept. 19.—For improvements at Bridlington Station, for the North-Eastern Railway Co. Mr. W. Bell, the Company's architect, at York, or the Station Master's Office, Bridlington.

Bristol.—Sept. 25.—For the construction and maintenance for twelve months after completion of a single floor transit shed on the west wall of the Royal Edward Dock, Avonmouth, for the Docks Committee. The contract includes timber piling, concrete foundations, timber floor, steel stanchions and roof principals, and galvanised corrugated iron covering. Mr. W. W. Squire, engineer, Engineer's Office, Cumberland Road, Bristol. Send a deposit of £5 to the Secretary of the Docks Committee, Docks Office, 19 Queen Square, Bristol.

Chipstead Common.—Sept. 27.—For alterations and additions to the Children's Homes (recently known as The Rock), Chipstead Common, near Sevenoaks. Deposit £1 1*s*. Mr. Ernest Pawley, architect, 86 High Street, Sevenoaks.

Darlington.—Sept. 21.—For the erection of additions to the Corporation Road school. Deposit £2 2*s*. Mr. G. Winter, borough surveyor, Town Hall, Darlington.

Durham.—Sept. 19.—The County Council invite sole tenders for (1) alteration, &c., at Ford and Blaydon Council Schools, Mr. N. Richley, Shire Hall, Durham; (2) caretakers' houses at South Moor and Dawdon, Mr. W. Rushworth, Shire Hall, Durham.

Edinburgh.—Oct. 4.—The Commissioners of His Majesty's Works and Public Buildings are prepared to receive constructional schemes and tenders based thereon for the erection of reinforced concrete floors, roofs, beams, columns, staircases, &c., in connection with the Royal Scottish Museum New Administration Offices. Any system or systems of construction may be adopted for the whole or any part of the work. Full details must be furnished immediately for examination, if necessary. Deposit £1. The conditions of contract may be inspected at H.M. Office of Works, 3 Parliament Square, Edinburgh; or at H.M. Office of Works, G.P.O., Glasgow.

Ellesmere Port (Cheshire).—Sept. 21.—For new elementary school at John Street (accommodation 450), for Bebington and Neston area. Deposit £1 1*s*. Apply after Sept. 9 to Messrs. Deacon & Horsburgh, architects, 12 St. George's Crescent, Liverpool.

Elworth.—Sept. 25.—For erection of proposed Wesleyan Chapel and school at Elworth, near Sandbach. Messrs. A. Price & Son, architects, Sandbach.

Epsom.—Sept. 26.—For erection of an operation ward at their workhouse infirmary at Epsom, for the Guardians. Deposit 10*s*. Mr. A. C. Williams, architect, 53 Doughty Street, W.C.

Glanton.—Oct. 2.—For alterations and improvements to the church and manse, for the Presbyterian Church of England at Glanton, Northumberland. Mr. G. Reavell, jun., A.R.I.B.A., Alnwick and Morpeth.

Glasgow.—Sept. 25.—For the extension of Glasgow General Post Office, for the Commissioners of H.M. Works and Public Buildings. Tenders are required for the whole work and not for separate trades. Deposit £1 1*s*. His Majesty's Office of Works, General Post Office, Glasgow, and H.M. Office of Works, 3 Parliament Square, Edinburgh.

Ireland.—For the rebuilding hotel and licensed premises, Cushendall, County Antrim, for Mr. P. M'Alister. Messrs. Connolly & M'Avoy, M.R.I.A., architects, Oxford House, 35 Oxford Street, Belfast.

Ireland.—Sept. 18.—For building offices in Barrack Street, Dundalk, for Messrs. Lockington & Co., Ltd. Mr. J. F. M'Gahon, architect, Exchange Buildings, Dundalk.

Ireland.—Sept. 20.—For erection of 46 cottages, for the Kinsale Rural District Council. Mr. J. Murphy, clerk, Council Office, Kinsale.

Isle of Man.—Sept. 20.—For alterations to the house and premises known as "Murray's House," Mount Havelock, Douglas, for the Committee of Tynwald. Messrs. J.

Cowle & Son, Government architects, St. George's Street, Douglas.

Isle of Man.—Sept. 23.—For alterations and additions to the Home for the Poor, Douglas. Deposit £1 1*s*. Messrs. J. Cowle & Son, architects, Douglas.

Keighley.—Sept. 19.—For the masons' and plasterers' work required in connection with the repairs to purifying houses and sheds at the Thwaites gasworks, for the Gas Committee. The Gas Offices, Cook Lane or Thwaites.

Kempston.—Sept. 16.—For erection of additions to the Bedford Road Council School, Kempston. Deposit £1 1*s*. The County Surveyor, Shire Hall, Bedford.

Leeds.—Sept. 19.—The Commissioners of H.M. Works and Public Buildings are prepared to receive tenders for the demolition of the buildings on the site of the proposed Leeds New Telephone Exchange. H.M. Office of Works, Infirmary Street, Leeds, or H.M. Office of Works, &c., Storey's Gate, London, S.W.

Leek.—Sept. 16.—For erection and completion of a Council School for about 356 older pupils and 100 infants. Send application and £1 1*s*. deposit by Sept. 16 to Mr. Graham Balfour, Director of Education, County Education Offices, Stafford.

Liverpool.—Sept. 26.—For slating at the cottage homes, Wavertree, for the Select Vestry. Mr. G. W. Coster, vestry clerk, Parish Offices, Liverpool.

London.—Sept. 18.—For erection of a chimney shaft at the refuse destructor works, East Ham. Mr. J. Birch, borough engineer, Town Hall, East Ham.

London.—Sept. 18.—For the erection of a cinematograph enclosure at their Goulston Street baths, for the Stepney Borough Council. Deposit £1. Mr. M. W. Jameson, A.M.I.C.E., borough engineer, Municipal Offices, 15 Great Alie Street, Whitechapel, E.

London.—Sept. 20.—For the erection of lavatory accommodation and shelters at Wormholt Park, Hammersmith, W. Mr. H. Mair, borough surveyor, Town Hall, Hammersmith, W.

London.—Sept. 21.—For enlargement of chief engineer's house and erection of lavatories in the Bancroft Road premises, Mile End, E., for the Guardians of Mile End Old Town. Mr. T. Rowland, acting clerk, Bancroft Road, Mile End, E.

London.—Sept. 25.—For building two sanitary conveniences (above ground) at Mortlake, for the Barnes Urban District Council. Mr. G. B. Tomes, A.M.I.C.E., surveyor, Council House, High Street, Mortlake.

London.—Sept. 27.—For repairs to roofs and gutters at the Fountain Hospital, Tooting Grove, S.W. Deposit £1. Mr. W. T. Hatch, M.Inst.C.E., engineer-in-chief, Metropolitan Asylums Board Offices, Embankment, E.C.

London.—Oct. 5.—For the extension of the land registry, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. H.M. Office of Works, Storey's Gate, London, S.W.

Mansfield Woodhouse.—Sept. 23.—For alteration and adaptation of the Wesleyan Chapel and schools for the purposes of public offices, for the Urban District Council. Mr. F. P. Cook, A.M.I.C.E., surveyor, Leeming Street, Mansfield.

Normanton.—Sept. 21.—The West Riding Education Committee invite whole or separate tenders for the following works, viz., builder, joiner, slater, plumber, plasterer, and painter, in additions to Normanton Common Council school. The Education Architect, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Neston.—Sept. 21.—For new handicraft and cookery centres and alterations to the Council school, Neston, Cheshire, for Bebington and Neston area. Deposit £1 1*s*. Messrs. Deacon & Horsburgh, architects, 12 St. George's Crescent, Liverpool.

Ottershaw.—Oct. 2.—For erection of a home for children on a site in the grounds of the workhouse, for the Guardians of Chertsey Union. Deposit £1. Mr. H. E. Paine, clerk, 80 Guildford Street, Chertsey.

Ripley.—Sept. 18.—For erection of a cottage hospital. Deposit 10*s*. Mr. R. Argile, architect and surveyor, 36 Oxford Street, Ripley, Derby.

St. Helens.—Sept. 20.—For the erection of an extension of the Thatto Heath Council school, off Elephant Lane. Deposit £1 1*s*. Messrs. Biram & Fletcher, architects, George Street, St. Helens, Lancs.

Sale.—Sept. 19.—For erection of public baths, for the Urban District Council. Deposit £1 1*s*. Mr. W. H. Mitchell, A.R.I.B.A., architect, 94 Market Street, Manchester.

Scotland.—Sept. 25.—For the carrying out of the various works in connection with the provision and construction of a refuse destructor installation for efficiently burning without nuisance the refuse of the city, for the Aberdeen Town Council. Mr. W. Dyack, M.I.C.E., burgh surveyor, Town House, Aberdeen.

Scotland.—Sept. 26.—For the excavator, concrete foundation, and masonry underbuilding work at the new Training College, Park Place, Dundee. Mr. T. Martin Cappon, architect, 32 Bank Street, Dundee.

Skelmanthorpe (Norfolk).—Sept. 19.—For erection of a weaving shed at Tenter Croft mills. Mr. J. Berry, architect and surveyor, 3 Market Place, Huddersfield.

Stanhope (Durham).—Sept. 19.—For alterations to the Stanhope Working Men's Club and Institute. Mr. R. B. Thompson, architect and surveyor, 7 Market Place, Bishop Auckland.

Stanley.—For restoration of St. Peter's Church after fire. Send names by Sept. 18 to Messrs. Watson, Son & Ellison, architects, Barstow Square, Wakefield.

Wakefield.—Sept. 18.—For erection of a plant house at the Public Park, for the Corporation. Mr. J. P. Wakeford, A.M.I.C.E., city surveyor, Town Hall, Wakefield.

Wales.—Sept. 16.—For terrazzo paving at (1) Cardiff workhouse, and (2) Ely workhouse, for the Guardians of Cardiff Union. Mr. A. J. Harris, clerk, Union Offices, Queen's Chambers, Cardiff.

Wales.—Sept. 20.—For erection of 17 dwelling houses at Godreaman, Aberdare, for the Fforchneol Building Club. Mr. C. H. Elford, architect, 32 Canon Street, Aberdare.

Wales.—Sept. 20.—For the extension of the existing waggon shed at the Cleansing Depôt, Trade Street, Cardiff, comprising a steel roof, 60 feet by 40 feet, covered with galvanised corrugated iron sheeting, for the Corporation. The City Engineer, City Hall, Cardiff.

Wales.—Sept. 23.—For alterations and additions to premises belonging to Messrs. G. Rutherford & Co., Bridge Street, Morpeth. Mr. C. Franklin Murphy, architect, Newgate Street, Morpeth.

Wales.—For alterations and additions to Afan Lodge, Llangammarch Wells, Brecon, comprising new dining and billiard rooms, &c., and about 20 bedrooms. Messrs. A. Swash & Son, F.R.I.B.A., architects, Llandridod Wells.

Warrington.—Sept. 19.—For foundation and flue connection for induced draught plant, for the Electricity and Tramways Committee. The Borough Electrical Engineer, Electricity Works, Warrington.

Wayland.—Sept. 22.—For the new infirmary buildings, for the Guardians of Wayland Union, Norfolk. Deposit £5 5*s*. Mr. H. J. Green, architect, 31 Castle Meadow, Norwich. Send names by Sept. 22 to Mr. F. Robinson, clerk, Watton.

Whitehaven.—Sept. 20.—For the joiner-work, slating, plastering, and plumbing in connection with the erection of a new hall at Scilly Banks. Mr. J. J. McBain, Duke Street, Whitehaven.

Widnes.—Sept. 28.—For the erection of drill hall and fencing, for the West Lancashire Association Territorial Force. Send names at once to Mr. J. P. Fraser, architect, 14 Elliot Street, Liverpool.

Wilts.—Sept. 25.—For carrying out certain repairs and renovations at the following County Police buildings, for the Standing Joint Committee of the County Council, viz.:—Police cottage, Chitterne; central police station, Devizes; police station, Fisherton, Salisbury; police station and cottage, Ludgershall; police station, Malmesbury; police station, Pewsey; police cottage, Shrewton; police station, Tisbury; police station, Trowbridge; police station, Warminster; police cottage, Yarnbrook. Mr. J. G. Powell, county surveyor, Trowbridge.

A weaving-shed, to accommodate 1,500 looms, is to be erected in the Walverden district of Nelson.

Messrs. Anderson, Sons & Hedley, auctioneers, Newcastle-on-Tyne, last week presented plans to the Town Improvement Committee of the Newcastle Corporation for a large block of buildings in New Market Street. The premises of four storeys will include a large warehouse and two commodious salerooms. The plans were passed.

The Winchester Corporation have received a letter from the Local Government Board sanctioning loans as follows: Site for elementary school, £1,015; erection of new school, £4,757; furniture and fittings, £215; tennis courts, £200; bathing place, £280.

TENDERS.

ATTLEBOROUGH.

For erection of gas manager's house, Attleborough, Norfolk. Mr. Herbert J. Green, architect and diocesan surveyor, Norwich, King's Lynn, and Lowestoft.

H. Smith	£439	9	0
Barnard	431	0	4
Peake-Vout	430	0	0
Harrison	421	1	4
E. J. Smith	414	0	0

CHURCH STRETTON.

For widening and improving Watling Street (South). Mr, Edwin J. Marsh, surveyor to the Council, Church Stretton.

Palmer	£2,342	0	0
Sherratt	2,041	17	2
Harris	2,000	0	0
Morley & Sons	1,980	19	8
Pace	1,975	11	5
Carter	1,960	19	7
Trentham	1,820	0	0
W. Jenkinson, Shrewsbury (*accepted*)	1,750	0	0

DEVIZES.

For works in erection of two new wards and alterations and additions to the Cottage Hospital. Mr. A. J. Randell, M.S.A., architect, Devizes.

Chivers & Sons	£2,198	0	0
Linsey	2,080	0	0
Parsons Bros.	1,997	0	0
Stone	1,930	0	0
Rendell & Sons	1,898	0	0
H. Ash, Devizes (*accepted*)	1,838	0	0

DONCASTER.

For alterations and extension to 18-20 Station Road. Mr. H. B. Beck, architect, Doncaster.

Arnold & Son	£1,379	8	0
Beastall & Sons	1,325	0	0
Sprakes & Sons	1,316	10	0
Mullins & Richardson	1,290	16	9
Gill & Son (*accepted*)	1,277	0	0

All of Doncaster.

FARNBOROUGH.

For erection of a cinematograph theatre. Mr. G. S. Valentin, architect, 18 Charing Cross Road, W.C.

Watson	£2,696	0	0
Hughes	2,649	0	0
Norris & Co.	2,640	0	0
Cockerell & Co.	2,587	0	0
Snuggs	2,485	0	0
Kemp & Co.	2,439	0	0
Seward	2,397	0	0
Blake	2,367	0	0
Martin Wells, Ltd.	2,199	0	0
Pope & Co., 2a Wilfred Street, S.W. (*accepted*)	1,999	17	6

HOYLAND NETHER.

For the various trades in erection of a small church and Sunday schoolroom, &c., at Hoyland Nether, near Barnsley. Mr. W. Allen, architect, Hoyland.

Accepted tenders.

J. Parr, excavator, mason and bricklayer	£650	0	0
N. Mell, carpenter and joiner	334	0	0
C. Firth & Sons, plumbers, glaziers and painters	160	0	0
G. H. Cooper, Wentworth, slater	85	0	0
Newton, Chambers & Co., Sheffield, heating	54	16	0
J. McPartlain, plasterer	54	0	0

Rest of Hoyland.

RICHMOND.

For erection of a receiving home for children at Parkshot, Richmond, Surrey, for the Guardians. Mr. E. J. Partridge, F.S.I., M.S.A., architect, Richmond.

Smith & Son	£2,739	0	0
Soole & Son	2,700	0	0
Jarman & Co.	2,489	0	0
Speechley & Smith, Richmond (*recommended*)	2,469	0	0
Gibson & Co.	2,434	0	0

LONDON.

For erection of a steward's house at the Western Hospital, Fulham, for the Metropolitan Asylums Board.

Chessum & Son	£962	0	0
Garrett & Son	959	0	0
Waller	954	0	0
Feltham	933	0	0
Jarman & Co.	899	0	0
McLaughlin & Harvey	850	0	0
Collinson & Co.	845	0	0
Pasterfield & English	799	0	0
T. Bendon, Ltd.	798	0	0
Ronald	795	0	0
Gibson & Co.	780	0	0
Hampton	779	0	0
Ballom	715	0	0
Leeder & Co., Chiswick (*recommended*)	673	0	0
Assistant Engineer's estimate	695	0	0

SHOREHAM.

For the construction of sewers, &c., in Gordon and Rosslyn Roads, and from Ham Road to Gordon Road, passing under railway, for the Shoreham-by-Sea Urban District Council. Mr. A. W. Nye, surveyor, Shoreham, Sussex.

Holman	£1,071	2	3
Willett	1,037	8	4
Parsons & Sons	937	0	0
McKellar & Westerman	872	19	8
Peerless, Dennis & Co.	824	0	0
Williams & Co.	769	0	0

SILKSWORTH.

For erection of a temperance hall. Mr. J. Wilson Hays, architect, Wingate.

Pitt	£921	18	2
Page & Wight	879	0	0
White	825	0	0
Clerey & Charlton	820	0	0
Golding & Ward	809	0	0
Wright	756	12	0
R. C. Brown, Sunderland (*accepted*)	739	0	0

THORNBURY.

For erection of Thornbury Grammar School. Mr. R. S. Phillips, architect, Gloucester.

Tucker Bros.	£868	0	0
Tanner & Son	837	0	0
Nicholls	834	10	0
Orchard & Peer	795	0	0
Pitcher	745	0	0
Hawkins, Thornbury (*accepted*)	699	10	0

WALES.

For the construction and laying of 12, 9, and 6-inch sewers for a total length of about 2,288 yards, for the Swansea Rural District Council. Mr. T. T. Williams, engineer, Swansea.

Lacey	£1,591	7	0
W. & J. R. Watson	1,394	8	6
Evans	1,362	13	3
Farley & Sons	1,210	6	10
Davies & Co.	1,074	14	11
B. Jones, Sketty, Swansea (*accepted*)	1,069	6	9

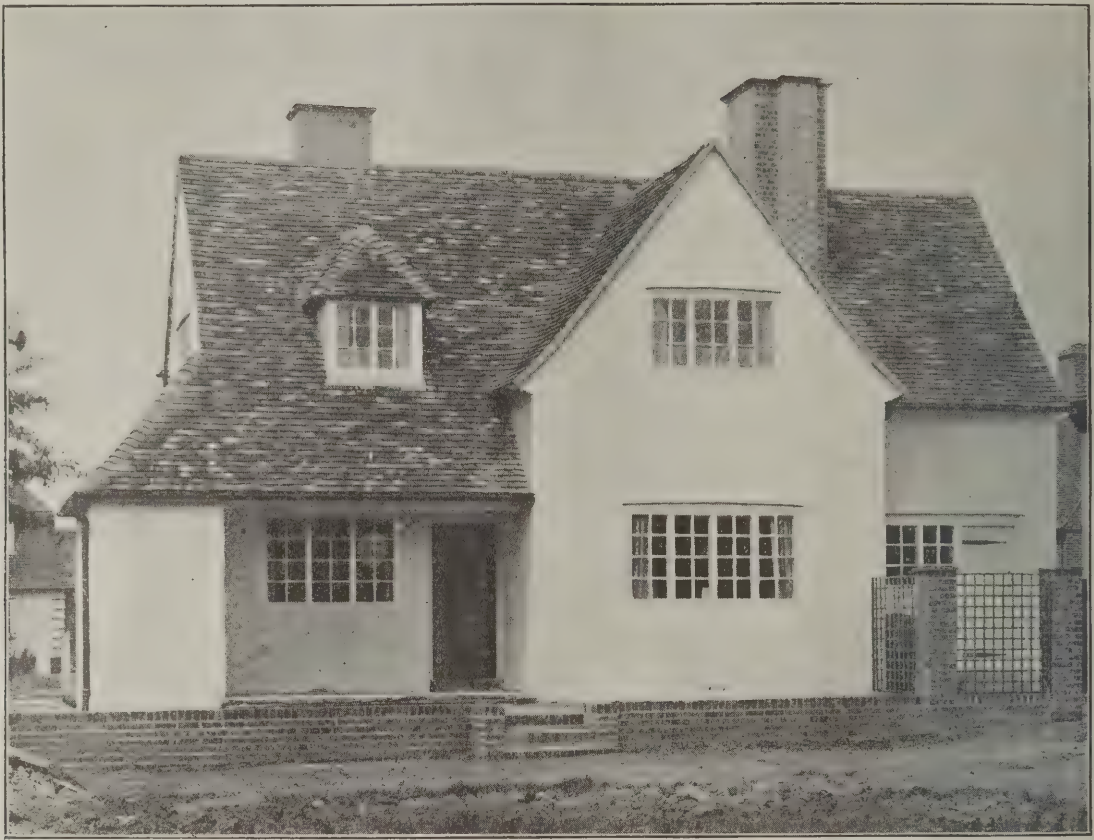
For the erection of a new mixed Council school at Brynmenin (Glam.), for the Glamorgan County Council. Mr. D. Pugh-Jones, F.S.I., M.S.A., architect.

Knox & Wells, Cardiff (*accepted*)	£4,197	0	0

WANTAGE.

For sewerage and sewage disposal works at Childrey, Berks, for the Wantage Rural District Council. Mr. J. W. Harris, engineer and surveyor, East Challow, Wantage.

Buckley	£1,697	0	0
Pedrette	1,660	0	0
Ash	1,275	0	0
Barrett	1,273	0	0
H. & C. Spackman	1,265	0	0
Smallbone & Son	1,248	0	0
Allee	1,244	0	0
Flewelling	1,237	0	0
Fitt	1,236	0	0
Elliot & Co.	1,210	0	0
Collier & Catley	1,195	0	0
Gregory	1,193	0	0
Trentham, Handsworth (*accepted*)	1,144	0	0
Engineer's estimate	1,290	0	0



GIDEA PARK EXHIBITION.—NO. 265 MEADWAY.—Mr. A. P. Starkey, Architect.

INSTITUTE OF METALS AUTUMN MEETING.

The annual autumn meeting of the Institute of Metals will be held at Newcastle-on-Tyne on September 20, 21, and 22.

The Hon. Sir Charles A. Parsons, K.C.B., F.R.S., LL.D., is acting as Chairman of the Local Committee, and Dr. J. T. Dunn, F.I.C., as Honorary Secretary.

The meeting will open at 10 A.M. on Wednesday, September 20, when the members will be welcomed at Armstrong College by the Rt. Hon. the Lord Mayor of the City, Sir W. H. Stephenson, D.L., D.C.L., and the local committee, after which a series of papers will be read and discussed, Sir Gerard A. Muntz, Bart., President, being in the chair. In the afternoon members will have the opportunity of visiting shipbuilding, engineering, metallurgical, and electrical works in the neighbourhood. In the evening there will be a reception of the members and their ladies, followed by a conversazione, in the Laing Art Gallery, by invitation of the Rt. Hon. the Lord Mayor.

On Thursday papers will be read and discussed at a morning session of the Institute, and in the afternoon there will be further visits to works.

For September 22 the Tyne Improvement Commissioners have placed a steamer at the disposal of the Local Committee for a voyage to the mouth of the river and back.

His Majesty the King on Sunday last unveiled the communion table and screen which he has had erected in Crathie Parish Church as a memorial to his father. The table is of white Iona marble with beautiful veinings in green and black. Standing between 6 and 7 feet in length, 3 feet in height, the table is arranged in front in three panels, and one at each end, while the top is formed of a single solid slab. The carved oak reredos rises against the east wall to a height of 8 feet. The wood, which was obtained from a country house in Leicester, is three hundred years old and is unpolished. The carving is in the late Scottish Gothic style after the manner of the specimen at King's College Chapel, Aberdeen. The memorial was designed by Messrs. A. Marshall Mackenzie & Son, of Aberdeen, the architects of the church. The communion table was the work of Messrs. Galbraith & Winton, 185 St. Vincent Street, Glasgow, and the carved oak screen that of Messrs. J. & A. Ogilvie, Aberdeen.

WATER SOFTENING PLANT AND HOT WATER SERVICE AT STOKE-ON TRENT WORKHOUSE.

A water softening plant and centralised hot water supply was recently installed at Stoke Workhouse by the Brightside Foundry and Engineering Co., Ltd., Messrs. Edwards & Shaw, of Birmingham, being the consulting engineers for the scheme.

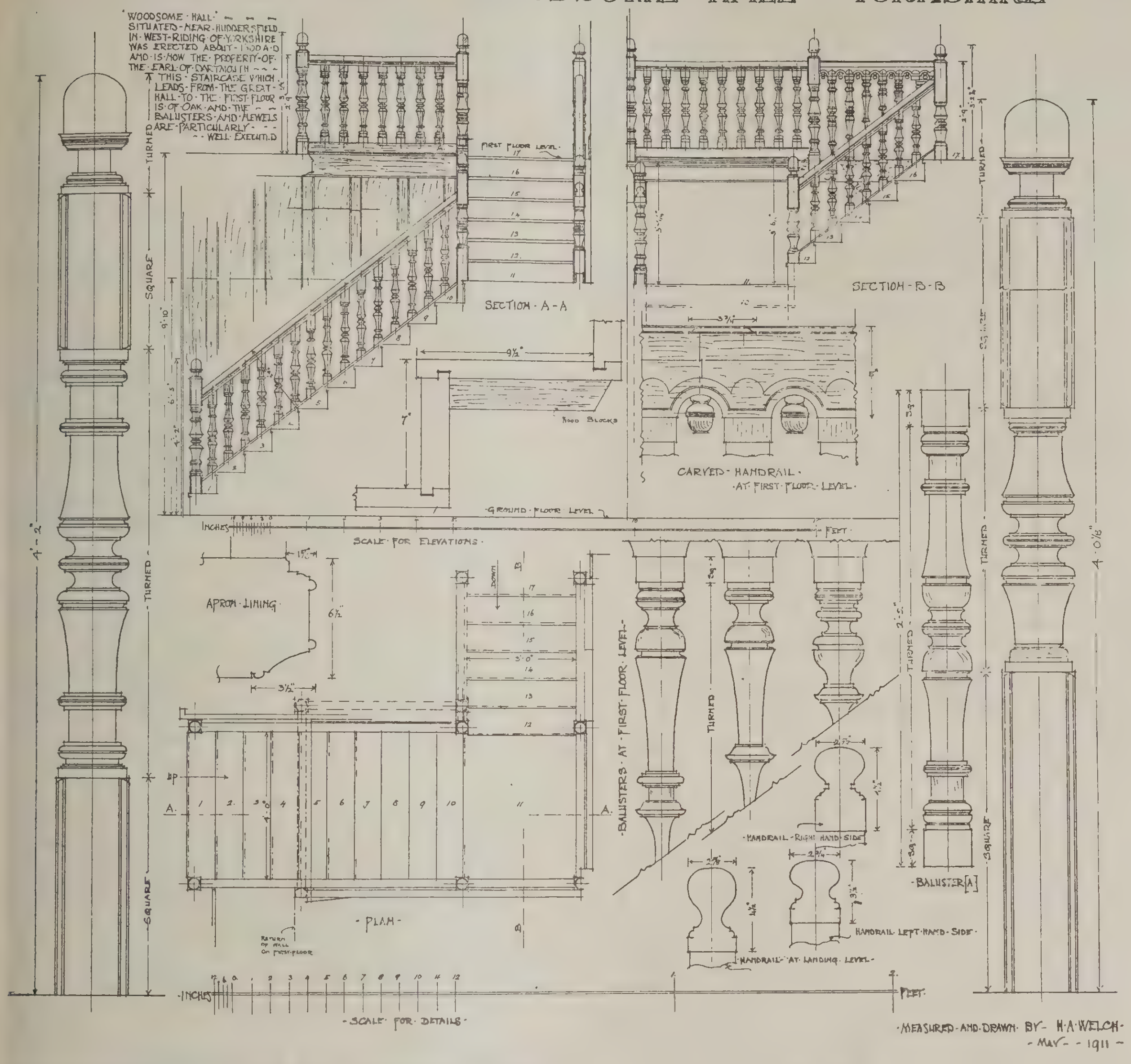
The water supply is obtained from three different sources, viz. the Potteries Water Works Co. and two wells, each supply being of quite a different character to the others, but all containing a considerable quantity of incrustating material, resulting in active precipitation of scale in the steam boilers and domestic hot water service mains. The water used was so hard that the boilers had to be taken off duty for cleaning every six weeks, while the water pipes in calorifiers, &c., had to be renewed at very frequent intervals, owing to their complete stoppage with sediment.

To overcome this difficulty the scheme was designed, firstly, to chemically treat and soften the water in order to remove the scale-forming elements, and, secondly, to centralise and operate the whole of the heating and domestic hot water supply from one central source, with a view to effecting the maximum economy in fuel and attendance.

The softening plant was made by Lassen & Hjort. Each water is conducted into a separate measuring compartment of its own, where the proper amount of reagent is added. The waters are kept separate until they have passed the first filter, at which point they can be tested to see whether the reagent is being used in correct quantities. This is quite a special feature of the plant, and it works admirably. This plant is capable of dealing with 4,000 gallons of water per hour. While passing the water to the softener, the opportunity is taken of weighing the water, and a correct and automatic record is thus kept of every gallon of water softened and heated, thus affording the master valuable information from day to day, which enables him to estimate the cost of softening and to detect any abnormal consumption or waste.

Exhaust steam from the dynamo engines is utilised for heating the water to a temperature of 180 degrees Fahr. This heat also assists and hastens the chemical reaction of the water. In several other similar institutions where water-softening has been tried for a domestic supply it has been found that there has been considerable deposit of mud in the

: STAIRCASE · AT · WOODSOME · HALL · YORKSHIRE :


'WOODSOME · HALL' — — —
SITUATED · NEAR · HUDDERSFIELD
IN · WEST-RIDING · OF · YORKSHIRE
WAS ERECTED ABOUT · 1500 A·D
AND · IS · NOW THE · PROPERTY · OF ·
THE · EARL · OF · DARTMOUTH ~ ~ ~
THIS · STAIRCASE WHICH
LEADS · FROM · THE GREAT ·
HALL · TO · THE · FIRST · FLOOR
IS · OF · OAK · AND · THE — —
BALUSTERS · AND · NEWELS
ARE · PARTICULARLY · — —
— · WELL · EXECUTED
FIRST FLOOR LEVEL
SECTION · A · A
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TURNED
SQUARE
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· AT · FIRST · FLOOR · LEVEL ·
GROUND · FLOOR · LEVEL
INCHES
SCALE · FOR · ELEVATIONS ·
FEET
APRON · LINING
BALUSTERS · AT · FIRST · FLOOR · LEVEL ·
HANDRAIL · RIGHT HAND · SIDE
BALUSTER [A]
HANDRAIL · LEFT · HAND · SIDE ·
HANDRAIL · AT · LANDING · LEVEL ·
· PLAN ·
· SCALE · FOR · DETAILS ·
· MEASURED · AND · DRAWN · BY · H · A · WELCH ·
· MAY · · 1911 ·

ervice pipes, but the consulting engineers foresaw that ouble, and avoided it by the method we have indicated.

The softened water is then circulated by means of a eam-driven Tangye Duplex pump through a 5-inch ring ain about 4,000 feet long round the Workhouse. The eturn water discharges into a storage and reheater tank near e softener from which the pump draws its supply.

It is so arranged that the return water can either be assed through the Green's economiser at the back of the oilers or direct into the storage tank. In this way the mperature of the water is raised again to 180 degrees Fahr. y the flue gases of the steam coil fixed in the reheater tank. he loss of temperature in passing all round the main is bout 40 degrees. The pipes are all coated with Haackes' ossil Meal Composition.

The ring main round the Workhouse is divided into several ections, so that in case of breakdown it is possible to isolate ny portion without interfering with the working of the maining section. Provision has been made by coupling up the ring main a Cornish boiler previously used as a hot ater boiler for domestic service, so that in case of any ossible breakdown at the electric station the water can still heated and circulated.

Also a stand-by Tangye pump has been fixed at the treme distant part of the ring main to enable the water be circulated through the hospital portion of the buildings ould any accident arise which necessitated the stoppage of e remainder of the service.

Branch supplies are taken from the main ring and connected up to all baths and lavatory basins, care being taken at there is a circulation up to each bath-room and lavatory order to avoid loss by drawing off cold water to waste. All th-rooms and lavatories, and also the children's wards of e hospital, are heated from the service by radiators.

The whole of the water of condensation from the steam traps, cooking apparatus, and drains from the engine cylinders is collected into a receiver and discharged back into the softener by means of a small motor-driven rotary pump. The softener effectually gets rid of all oil in the exhaust steam, there being no trace of it in the water pumped round the main.

It is found that in normal times there is sufficient exhaust steam from the engines to heat up all the water required for the Workhouse, but provision has been made, of course, for using live steam for this purpose when the engines are not running.

THE Douglas Town Council on Wednesday voted the first prize of £200 to Mr. Percy Robinson, architect, of Leeds, for plans of a pavilion to be erected on the Villa Marine Estate, which is to be converted into public pleasure grounds. For the erection of the pavilion there is a tender of over £16,000.

A COMMITTEE has been formed to collect donations for one of the ten buttresses in course of erection against the south aisle wall of Winchester Cathedral as a memorial to the Rev. John Keble, author of "The Christian Year" and vicar of Hursley. The erection of the buttresses will mark the completion of the work at this cathedral.

THE Boundaries Committee of Dunfermline Town Council on Saturday agreed to recommend that Messrs. Crouch, Hogg & Easton, civil engineers, Glasgow, who were responsible for the mapping of the route and the fixing of the levels of the Rosyth drainage scheme for presentation to the Houses of Parliament in connection with the Boundaries Extension Bill, should be entrusted with the engineering work. The scheme is to cost fully £100,000. Messrs. Douglas & Wright, of Dunfermline, were instructed to carry out the necessary measuring work.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit full particulars to Room 6, Imperial Buildings, Ludgate Circus, for insertion in this weekly list.)

ENGLAND.

Berkshire.
Wokingham.—Bakehouse, Goodchild Road.

Cheshire.
Higher Bebington.—Council School.
Malpas.—Council houses.
Stockport.—Police courts and buildings (£30,000). Messrs. J. T. Halliday & C. Patterson, A.R.I.B.A., architects.

Cornwall.
Padstow.—A dozen workmen's dwellings. Mr. Magor, builder.
Trevanson.—Two houses.
Veryan.—Church repair and new organ (£800).

Cumberland.
Langholm.—Water supply scheme (£6,000). Messrs. Wallin & Taylor, engineers.

Devonshire.
Plymouth.—Devon and Cornwall Ear and Throat Hospital (£2,000). Messrs. Thornely, Rooke & Barton, architects.

Essex.
Benfleet, South.—See below.
Braintree.—King Edward Memorial swimming bath.
Hadleigh.—See below.
Hawkswell.—See below.
Heybridge.—Council School.
Hockley.—See below.
Hornchurch.—Sewerage scheme (£350). Romford R.D.C. Surveyor.
Rayleigh.—See below.
Rochford.—Water supply scheme for Rochford, Rayleigh, Hadleigh, South Benfleet, Hockley and Hawkswell (£11,000). Messrs. Beesley, Son & Nichols, engineers.
Southend-on-Sea.—Parish Hall for St. Helen's R.C. Church (accommodation for 250).

Hampshire.
Bordon.—Officers' quarters at the Camp (£15,000).
Emsworth.—Primitive Methodist Church renovation.
Drainage works. Mr. A. J. Martin, engineer; Messrs. Johnson & Langley, contractors.
Portsmouth.—Swimming bath (£3,000).
Workhouse Infirmary extension.

Herefordshire.
Ledbury.—Swimming baths.

Hertfordshire.
Bishop Stortford.—St. Michael's Schools extension (£700).

Kent.
Bromley. — Workhouse additions and alterations (£31,000). Mr. F. J. Smith, F.R.I.B.A., architect.
Frindsbury Extra.—Chattenden Council School.
Halstead.—Open-air shelters for consumptives.
Sevenoaks.—Children's Homes additions and alterations, Chipstead Common. Mr. E. Pawley, architect.
Swanscombe.—Knockhall Council School.
Wrotham.—Borough Green Council School.
Wye.—S.E. College addition for E. Ashford R.D.C.

Lancashire.
Great Lever.—House in Green Lane.
Heaton.—House in Green Mount Lane.

Leicestershire.
Lutterworth.—Cottage Hospital extension (£700).
"Stow House" alterations for the Sisterhood of "Poor Clare."

Lincolnshire.
Alford.—Houses, Farlesthorpe Road.
Croft.—Free Church Schoolroom (£400).
Horncastle.—Additions to house at Belchford.
Stable and cartshed at Mareham-le-Fen.
Spalding.—Public swimming baths.

Monmouthshire.
Abercarn.—Two tin-plate mills for the Newport Tinplate Company, Ltd.

Norfolk.
Yarmouth.—Council School at Cobholm.
School of Art, Trafalgar Road.

Northamptonshire.
Grendon.—Union Chapel restoration.
Staverton.—Daventry Council Isolation Hospital for 20 patients (£1,700).

Oxfordshire.
Henley.—Villa at Sonning Common.

Somersetshire.
Bath.—Cattle market improvements.
Bridgwater.—St. Saviour's Parish Mission Church and Institute.
Taunton.—Public Library extension.
Twerton.—Bakery. Messrs. Erwood & Morris, contractors (£2,740).

Staffordshire.
Cannock.—Premises in Mill Street.
Hednesford.—Houses.
Parish and Mission Churches: improvements.
Technical Institute. Messrs. H. Dorse & Son, contractors.
Lichfield.—Sewerage scheme (£10,000).
Longton.—Town Hall improvements (£7,500).
Newcastle-under-Lyme.—General Post Office.
Rugeley.—Alterations to premises, Albion Street.
Stafford.—Messrs. W. H. Dorman & Co.'s (Ltd.) new engineering works.
Wimblebury.—School additions and alterations.

Suffolk.
Lowestoft.—Parish Hall (£4,000).

Surrey.
Chertsey.—Children's Home, Ottershaw.
Chobham.—Council Surveyor's house and Council depôt.
Epsom.—Workhouse Infirmary: operation ward. Mr. A. C. Williams, architect.
Farnham.—Gas and Electricity Company's generating station.
Haslemere.—Church room (£1,000).
Molesey, East.—Council School.

Sussex.
Bognor.—Victoria Convalescent Home: alterations.
St. Michael's Schools: alterations.
Cuckfield.—Workhouse: alterations to isolation wards to provide Nurses' Home.
Westbourne.—Free Church Sunday Schools.

Wiltshire.
Odstock.—Church Tower repair (£200).

Worcestershire.
Claines.—Water supply scheme (£1,700). Mr. Fiddian, engineer.
Malvern, North.—Girls' School additions.
Worcester.—Cherry Orchard School. Messrs. J. J. Bray & Son, contractors.
Hound's Lane School. Mr. H. J. Probert, contractor.

Yorkshire.
Barnsley.—Holyrood R.C. School enlargement.
Crossgates.—Two villas. Mr. E. V. Wimpenny, architect.
Woodscats.—Church.

WALES.

Cardiff.—Cavalry Barracks.
Clydach.—Hundred houses on the Ynyspenllwch estate.
Merthyr Vale.—Infants' School at Mount Pleasant (£4,500). Mr. A. J. Colborne, contractor.
Pontardawe.—Municipal houses.
Twenty-eight residences on the Ynisdarren estate.
Pontsarn.—Sanatorium (Merthyr Guardians).
Pontyeates.—Church for 400 people. Mr. William Griffiths, F.S.I., architect. Mr. G. Mercer, contractor.
Swansea.—Council School at Cwmbwrla.
Sewerage scheme (£200,000). Mr. Wyrill, Borough engineer.
Ystalyfera.—Fifty houses on the Yniscedwyn estate.

SCOTLAND.

Aberfeldy.—Woodwork, laundry and cookery accommodation at the school.
Arbroath.—Infirmary reconstruction (£8,000).
Ardincaple.—Public School enlargement and repairs.
Benderloch.—Church.
Cambuslang.—Board School.
Cardonald.—Two double cottages in Lennox and Westfield Roads.

Clarkston.—Cottage in Stewart Drive.
Clydebank.—Morison Memorial Church: reconstruction.
Connel.—Public hall. Mr. J. MacDougall, contractor.
Dundee.—Bungalow, Strathmartine Road.
Cinematograph theatre.
Semi-detached villas, Clepington Road.
Warehouse, &c., Douglas and Brown Streets.
Duror.—Chancel for the Episcopal Church.
Easdale.—Public School and offices: alterations.
Edinburgh.—Five houses at Portobello.
House, Mayfield and Esslemont Roads.
Four flatted villas, Mayfield Road.
Ice rink at Haymarket.
Fort William.—Public School additions and alterations at Roy Bridge. Mr. J. G. Falconer, architect.
Kirkintilloch.—Board School enlargement, Lairdsland (£1,800).
Kirkwall.—St. Magnus Cathedral restoration. Mr. J. M. Watson, architect.
Yoker.—Church halls and rooms, Harvey Street.
Four double villas, Mill Road.

WELL WATER SUPPLY IN THE CITY OF LONDON.

The heavy increase in the charges made by the Metropolitan Water Board for the water service has of late years resulted in the sinking of a large number of artesian wells. In June 1910 Dr. Wm. Collingridge, Medical Officer of Health for the City of London, submitted the result of an investigation into the nature of the water derived from such sources in the city. In his annual *résumé* of the year's work he again refers to the conditions and circumstances affecting the citizens' supply of an indispensable element. His report is as follows:

While there is no reason to take exception to the quality of the water supplied by the Metropolitan Water Board, the heavy charges levied have stimulated many property owners to seek relief from what they consider an unjust taxation by sinking wells.

The city supply of water is derived from (*a*) The New River District (formerly the New River Company), the sources of supply being the Chadwell Spring, the River Lea, and eighteen chalk wells; (*b*) the Eastern District (formerly the East London Water Company), the source of supply being from the River Lea, the Thames at Sunbury, and chalk wells and springs.

With the exception of a few supplies in the parishes of St. Botolph, Bishopsgate, and St. Botolph, Aldgate, which are in the Eastern District, the New River District embraces the whole of the city.

I do not wish to condemn the methods of the Water Board at all, but it must not be overlooked that both of these districts are, to some extent, dependent upon the River Thames and the River Lea, both of which are navigable rivers flowing through densely populated areas, and doubtless receive their due share of filth and other objectionable matter. When the sixth report of the Rivers Pollution Commission, dated 1874, was issued, it was scarcely known that filtration removed anything more than suspended impurities, and that only to an imperfect extent, and the use of water for domestic purposes from both the Rivers Thames and Lea was unsparingly condemned by the Commission, but very soon after that report was written it became quite evident from things that occurred in connection with the London water supply that organic matter in solution, as well as suspended impurities, was removed by filtration. The Water Board, moreover, take every precaution to ensure that the water supply under their control is free from impurity when it reaches the consumer, and, taking all these circumstances into consideration, I am in entire accord with the conclusions arrived at by the Royal Commission on Metropolitan Water Supply of 1892: "That the water as supplied to the consumer in London is of a very high standard of excellence and purity, and that it is suitable in quality for all household purposes. We are well aware that a certain prejudice exists against the use of drinking water derived from the Thames and the Lea because these rivers are liable to pollution, however perfect the subsequent purification, either by natural or artificial means, may be; but having regard to the experience of London during the last thirty years, and to the evidence given to us on the subject, we do not believe that any danger exists of the spread of disease by the use of this water, provided that there is adequate storage, and that the water is efficiently filtered before delivery to the consumers.

The method of obtaining a water supply in the city by means of well sinking is by no means a new one, since an artesian well sunk at No. 20 Old Broad Street (formerly the site of the Excise Office) is described in the Transactions of the Institute of Civil Engineers, vol. 1, page 155, published in 1836. This well became subsequently contaminated with polluted surface water, and in 1908 a new boring was made on the old site.

There are now thirty-six wells established in the city, fourteen of which were sunk during the seventy-one years 1836-1907, the remaining twenty-two, or 61 per cent. of the total number, being made in 1908-1909.

Samples of the water from all these wells were taken and submitted to Dr. Teed for chemical analysis.

With regard to their purity, Dr. Teed reports that: "The waters are highly pure as far as organic contamination is concerned; they are soft, but on the other hand they are somewhat saline. The total solids average 49 grains per gallon, whereas London water runs about 20 grains to the gallon. The London deep well waters contain fair amounts of bi-carbonate of soda and sodium sulphate, which I have known to be a source of considerable trouble to steam-raisers. Lead and copper were absent in all cases."

In this connection, and for comparative purposes, it may be interesting to again quote from the report of the Rivers Pollution Commission previously referred to: "Of the different varieties of potable water, the best for dietetic purposes are spring and deep well waters. They contain the smallest amount of organic matter, and are almost always bright, sparkling, palatable, and wholesome, whilst their uniformity of temperature throughout the year renders them cool and refreshing in summer and prevents them from freezing readily in winter. Such waters are of inestimable value to communities, and their conservation and utilization are worthy of the greatest efforts of those who have the public health under their charge."

With regard to the uniformity of temperature referred to in the above quotation, such is demonstrated in its completest sense by the chemical analysis. Although the samples were taken during both the summer and winter months, the variation in temperature never exceeded 6 degrees, the lowest recorded being 54 degrees and the highest 60 degrees; the average temperature being 57.4 degrees Fahrenheit.

When it is realised that the water obtained from this source is of undoubted purity and wholesomeness, and that, moreover, the fact of its being "soft" renders it more suitable for domestic and manufacturing purposes than that delivered by the Metropolitan Water Board, it is not surprising that the adoption of a well water supply is gaining ground so rapidly, especially when one takes into consideration the fact alleged by experts that great economy can thereby be effected.

An example of this economy which may be quoted is that of a large West End hotel which was paying 900*l.* per annum water rate. A well and pumping plant were installed at a cost of 800*l.*, and the total cost of running this plant, including repairs, has been found to be 200*l.* per annum. Thus a saving of about 700*l.* per annum appears to have been effected on a capital outlay of 800*l.*

The fact, however, must not be overlooked that there is a possibility, undoubtedly remote, that the yield may eventually prove insufficient, and this would necessitate the reinstatement of the Water Board's supply, with the subsequent loss of money spent in sinking the well. In the city alone there are thirty-six of these wells in use, and with the exception of four all are within about 2,000 feet of the Merchant Taylors' Hall in Threadneedle Street. All these wells are deriving their supply from the same source, and, moreover, the Water Board largely tap the water supply before it reaches the city, there being no less than forty-nine wells belonging to the Board drawing upon the water in the chalk.

This depletion cannot be expected to continue indefinitely without seriously affecting the interests of well owners, and already there is evidence that the continual drainage is having its effect upon the supply. The fall of the water level in the London Basin, which is the geological formation upon which the city is situated, is undoubtedly due to the increased demands made upon it.

Considerable difficulty was experienced in obtaining reliable information in the city upon the question of water levels. That the normal rest level of water in wells is falling is generally admitted, but the rate of fall does not appear to be uniform, varying from 2 to 3½ feet per annum. The discrepancy is doubtless accounted for by the difficulty in accurately determining the normal rest level.

Of course, the falling of water levels is not so disquieting as it may at first appear. The simple expedient of lowering the pump will give the well a new lease of life, and then the abandonment of the well is at least postponed.

It is obvious, therefore, that there is a certain element of speculation in investing money in well-sinking in London, as in addition to the possibility of the supply becoming inadequate there is the risk of unforeseen circumstances arising that may involve the expenditure of large sums of money. Our own experience in connection with the well at the Artizans' Dwellings, Stoney Lane, is a case in point. Commenced twenty-three years ago, costing no less than 5,610*l.* before ready for use, the cost of pumping, allowing for all contingencies except interest on capital expenditure and depreciation of plant, reaches 5½*d.* per 1,000 gallons. It must be pointed out, however, that this is an exceptional case, as the methods then adopted have since been considerably improved. Further, the progress of the work was at times very slow, at one time 110 working days being spent in boring through 5 feet 10 inches of conglomerated rock. In all, four years were occupied in its construction.

I know of two cases at least in which when the well was completed the yield was so scanty as not to be worth pumping, labour, and maintenance, and the wells were accordingly abandoned.

There does not appear to be any reason whatever why property owners, if they feel oppressed by water taxes, should not seek relief by the sinking of a well, the water derived from which is equal in purity to that supplied by the Metropolitan Water Board.

The economical advantages that may be derived from this method hardly fall within my province, the only persons qualified to authoritatively decide this point being geologists and hydraulic engineers who have made a special study of the subject.

TRADE NOTES.

Messrs. Roberts, Adlard & Co., of 26 Bermondsey Wall, are offering for sale about 100,000 old roofing machine-made tiles, which can be seen in London.

The Sheffield Corporation Waterworks Department have just placed a contract for thirty-two patent mechanical pressure filters and auxiliary plant capable of dealing with a flow of 6,000,000 gallons per day with the well-known firm of Mather & Platt, Ltd., of Manchester.

At Hartshorne, Burton-on-Trent, a large clock with two 5-feet dials and striking the hours has just been erected upon the parish church. The work was carried out by John Smith & Sons, Midland Clock Works, Derby, to the general designs of the late Lord Grimthorpe.

Last week a slight fire occurred at the Arkwright Spinning Company's mill, Rochdale, in the wheel-race of a small engine which drives the scutching-room. One "Titan" sprinkler operated and had the fire out immediately. The cause is supposed to be due to the overheating of a shaft gearing.

We are informed that during the present year there has been a steady increase in the use of "Ceresit" for waterproofing purposes. A large number of repeat orders have been received from Government departments, railway companies, and other public bodies. At the moment "Ceresit" is being employed by the London and North-Western Railway Company for the waterproofing of two passenger subways at Stonebridge and Bushey; and Messrs. Vickers, Ltd., are about to use it for a large tank at St. Albans. The tank, which will be of concrete, will be rendered with "Ceresit" mortar varying in thickness from 1½ to 2 inches, the total area of the rendering being 2,022 square yards, for which 500 gallons of "Ceresit" will be required.

Messrs. H. Elliott & Co., County Bank Chambers, Ealing, W., have sent us a sample of their "Khala" hard porcelain wall tiles. These tiles are guaranteed to be free from all glazing fissures. They are produced in four colours and as many quarter sizes, with bevelled or sharp edges, and of three qualities. Special moulds have been made for such shapes as external and internal angles, bull-nose plinth or top-course tiles, cornices, corner returns, &c. "Khala" tiles are said to be acid-proof and absolutely unaffected by changes from sudden heat to great cold.

The London and Glasgow Shipbuilding Company have been granted lining by Govan Dean of Guild Court for the erection of large new workshops in their yard at Govan.

VARIETIES.

The Sheffield City Council have given formal notice of their intention to erect a public elementary school for 840 children at Wharncliffe View.

The North Riding Education Committee on Tuesday accepted the tender of Mr. T. Willoughby, of Northallerton, amounting to £3,481, for the erection of a Council school at Loftus.

The Cheshire Education Committee contemplate the erection of schools for West Kirby, Higher Bebington, and Ellesmere Port. The committee has received the consent of the Local Government Board to the borrowing of £350 for the provision of a caretaker's house, and of £1,102 for the equipment of the High School for Girls, West Kirby.

The Society of Architects will be officially represented at the forthcoming International Congress at Rome by Mr. Percy B. Tubbs, F.R.I.B.A., vice-president, and Mr. R. G. Lovell, member of Council. At the Crystal Palace Mansion House Conference, Oct. 23, the Society will be represented by Mr. Geo. E. Bond, J.P., president, and Mr. Percy B. Tubbs, F.R.I.B.A., vice-president.

At Dumbarton Dean of Guild Court on Monday a petition and plans were submitted on behalf of the Sisters of the Order of Notre Dame for considerable extensions to Clerkhill, a residence overlooking the Clyde on the Cardross side of the town, which they have acquired for scholastic purposes. The extension will consist entirely of class-rooms. Plans were also passed, on the petition of Mr. Jas, Bell, architect, Motherwell, for the erection of a lodging-house in Risk Street, which will accommodate over 200 persons. Mrs. Janet F. Buchanan, Church Street, was granted lining to erect additional dwelling-houses at her premises at 11 Strathleven Place.

Messrs. Roberts, Adlard & Co., Bermondsey, have published a revised edition of "Customary Rules of Measurement of Slating and Tiling." These are based on the standard system of measuring slating and tiling which was adopted by the Surveyors' Institution and the Quantity Surveyors' Association in 1909. The revision is made in accordance with an agreement arrived at in December last between the London Master Builders' Association and the London Association of Slate Merchants and Master Slaters on the subject of certain allowances. The pamphlet includes information about some of Messrs. Roberts, Adlard & Co.'s goods.

Easington Rural District Council last week passed plans for twelve aged miners' homes at Murton, for the Durham Aged Mine-Workers' Homes Association. Other plans passed included a temporary chapel at Easington Colliery for the United Methodists, and a temporary church at Black Hall Rocks, for the Horden Collieries Company, Ltd. The committee having charge of the proposal to build 100 houses at Murton, under the Housing of the Working Classes Act, recommended that a block plan be prepared, and, if necessary, furnished to the competing architects.

The Fife Coal Company have decided to proceed at once with the laying out of a new village at Valleyfield in connection with their mining developments. In all 192 houses are to be erected at the present time. Of these 176 will be of two apartments and 16 of three apartments, and all are of one storey. The houses are to be erected in four groups, there being in each group 44 houses of two rooms and four of three rooms. Each house is to have scullery, containing washing boiler, enamelled sink, water-closet, and coal-house, while each of the three-roomed houses have in addition a bathroom with hot and cold water. The company undertake to make the road between the houses 50 feet wide. The plans have been approved by the Dunfermline District Committee.

ANSWER TO CORRESPONDENT.

Terrazzo Floor.—The first step in laying terrazzo flooring is the provision of a firm bed. This is usually of Portland-cement concrete, six inches thick, but terrazzo could be laid over old stone, brick, or tile paving. The concrete bed is finished with a floated and level surface of cement. When this has set the terrazzo is laid down, consisting of small marble chippings of irregular size and usually of varied colours in Portland cement grout. This is spread and laid evenly, being flattened down to a fairly smooth surface. When this has set hard it is rubbed down with stone rubbers to a perfectly level and dull polished face. The work is usually done in this country by Italians, who are experts in the technique of rightly proportioning the cement and marble and regulating the thickness of the finished terrazzo.

THE

The Architect and Contract Reporter.

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AGENTS FOR AMERICA.

The International News Co., 5 Bream's Buildings, Chancery Lane, London, England, and New York.

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NOTICE TO ADVERTISERS.

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2* P.M. *on Thursdays.*

COMPETITIONS OPEN.

ATHENS.—Sept. 25.—An international competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a Court of Justice at Athens. The cost of the building must not exceed 160,000*l*. A first prize of 800*l*., and a second prize of 320*l*. will be awarded. The Greek *Official Gazette*, containing particulars (in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

AUSTRALIA.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

BARNSLEY.—Oct. 7.—The Town Council invite competitive drawings for a proposed extension of public baths, including a swimming bath, Russian and vapour baths, and slipper baths, in connection with the existing public baths in York Street and Race Street, Barnsley. The Town Council offer premiums of £50, £30 and £20. Mr. J. H. Taylor, M.I.C.E., borough surveyor, Manor House, Barnsley.

BRISTOL.—Oct. 31.—The Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

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There cannot be any dogmatism on the subject of Art; but there are certain underlying *principles*, and the object of this book is to propound these in an easy and argumentative manner on the lines so successfully pursued by the author in his now standard work on Planning.

The study of the principles referred to is aided by illustrations which are for the most part of a diagrammatic character; in which light they are to be regarded, and not as finished illustrations exemplifying the Perfect Design.

The book has been well received and sympathetically reviewed during the short period that it has been issued; and with a view to fostering the growing interest of the general public in the art of Design, it has been kept free from any undue use of technicalities. It should appeal, therefore, to the layman as well as to the architectural student and designer.

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Coseley.—Oct. 12.—Plans for school for 200 children for he Education Committee, at Dimmock Street, Park- eld, Coseley, W. Dudley. Conditions, one guinea, return- ble on receipt of plans. Mr. Fred J. C. Poole, Secretary, ducation Offices, Coseley, near Bilston.

Evesham.—Oct. 7.—The Rural District Council invite esigns, with estimates of cost, for laying out a building te at Broadway and the erection thereon of 30 cottages, nder the Housing and Town Planning Act, 1909. The rchitect whose design is accepted will be appointed to carry t the work at an inclusive fee of 5 per cent. Deposit £1 1*s*. r. E. H. Wadams, Clerk, Union Offices, Evesham.

Halifax.—Oct. 7.—The Tramways Committee invite de- gns and tenders for tramway shelters. Particulars, with acings of sites, can be obtained on application to the orough Engineer, Town Hall, Halifax.

Hastings.—The Joint Committee of the East Sussex ospital and the King Edward VII. Memorial Fund invites chitects to submit designs in competition for the proposed w hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been pointed assessor. Premiums of £125, £75, and £50 are ered. Conditions and instructions may be obtained (on yment of £1 1*s*. deposit) from Mr. W. M. Rhodes, East ssex Hospital, Hastings.

London.—The Metropolitan Borough Council of St. arylebone invite designs for new municipal buildings in arylebone Road. Deposit £1 1*s*., which will be refunded receipt of a bona-fide design or return of conditions within e month of receipt. All particulars from Mr. James ilson, Town Clerk, Town Hall, Marylebone Lane, Oxford reet, W.

Murton.—Oct. 4.—The Easington Rural District Council ite plans for three separate types of houses, of which it proposed to build 100 at Murton Colliery, Durham. The uses to be in streets of twenty with 16 ft. back streets, ft. frontage, and garden ground in front of each house a depth of 30 ft., an earth closet and outside pantry be provided for each house. Strict compliance with the uncil's by-laws and the Local Government Board regula- ns will be required. The following are the types of uses:—Type A.—28 ft. gable, three bedrooms, one living m, one sitting room, scullery (offshot), with kitchen range l bath. Type B.—25 ft. gable, three bedrooms, one living m, scullery, with kitchen range and bath. Type C.— o bedrooms, one living room and scullery, with kitchen ge and bath. Appearance and economy of structure will considered. The successful candidate will receive 2½ per t. commission upon the net cost of buildings when erected. other remuneration will be paid. Mr. J. M. Longden, uncil Offices, Easington, Castle Eden.

Uruguay.—Jan. 30.—The Ministry of Public Works ite competitive plans for a town-improvement scheme l for a new Government Palace at Monte Video. emiums of about £1,060, £640, and £425 are offered for former scheme, and about £2,215 and £850 for the latter. signs for the Government Palace must be submitted by n. 29, 1912, and for the town-improvement scheme by n. 30. A statement of the conditions of the competition Spanish) may be seen by British firms at the Commercial elligence Branch of the Board of Trade, 73 Basinghall eet, London, E.C.

Wales.—The Cardiff Education Committee invite designs l estimates in competition for a technical institute pro- ed to be erected in Cathays Park. Mr. J. S. Gibson, hitect, will act as assessor. Full particulars will be sent architects on application, accompanied by a deposit of 2*s*., which will be returned to all architects submitting a-fide designs or who return the conditions within six eks. Mr. J. Jackson, director of education, Education ices, City Hall, Cardiff.

CONTRACTS OPEN.

Ash-next-Sandwich (Kent).—Sept. 27.—For erection of parish hall and works in connection therewith. Deposit 2*s*. Messrs. Jennings & Gray, architects, 4 St. Mar- ret's Street, Canterbury.

Aspatria.—Sept. 26.—For erection of two dwelling- uses in Station Road. Mr. J. Henney, architect and rveyor, 39 Senhouse Street, Maryport.

Aylesbury.—Sept. 26.—For decorating, sanitary, and er work at The Grove, Grendon Underwood, for the ardians of Aylesbury Union. Mr. F. Taylor, A.R.I.B.A., rveyor, 7 Bourbon Street, Aylesbury.

Belfast.—Sept. 25.—For erection and completion of a warehouse in Adelaide Street and Clarence Street, for Messrs. Bulloch & Co. Deposit £2 2*s*. Messrs. Blackwood & Jury, MM.R.I.A.I., architects, 41 Donegall Place, Belfast.

Belfast.—Sept. 25.—For internal plumbing work in connection with the Purdysburn Villa Colony Asylum villas Nos. 8 and 9, for the Asylum Committee. Send £1 deposit to Mr. R. Meyer, town clerk. Messrs. Watt, Tulloch & Fitzsimons, 77a Victoria Street, Belfast.

Biggleswade.—Sept. 30.—For erection of new hall and Liberal Club premises in High Street. Deposit £1 1*s*. Mr. W. C. Owen-Jones, architect, Biggleswade.

Birmingham.—Oct. 3.—For the Finishings (second) Contract at the Telegraph Stores, Block C. Deposit £1 1*s*. Mr. J. Tosh, H.M. Office of Works, Pinfold Street, Birmingham, or H.M. Office of Works, Storey's Gate, London, S.W. (See advertisement, Sept. 15.)

Bredbury.—Oct. 7.—For erection of a special subjects centre at Berrycroft Lane, Bredbury, near Stockport. Deposit £1 1*s*. Messrs. Sankey & Cubbon, F.R.I.B.A., architects, 4 Chapel Walks, Manchester.

Bristol.—Sept. 25.—For the construction and maintenance for twelve months after completion of a single floor transit shed on the west wall of the Royal Edward Dock, Avonmouth, for the Docks Committee. The contract includes timber piling, concrete foundations, timber floor, steel stanchions and roof principals, and galvanised corrugated iron covering. Mr. W. W. Squire, engineer, Engineer's Office, Cumberland Road, Bristol. Send a deposit of £5 to the Secretary of the Docks Committee, Docks Office, 19 Queen Square, Bristol.

Broughton.—Sept. 29.—For erection of a corrugated iron cookery room at Broughton Council School, Hants. Deposit £2 2*s*. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

Caister-on-Sea.—Oct. 11.—For erection of the proposed infants' school at Caister-on-Sea, Norfolk. Send names and £1 1*s*. deposit by Sept. 26 to Messrs. Olley & Haward, architects, 5 Queen Street, Great Yarmouth.

Chingford.—Sept. 23.—For erection of a public elementary school, with accommodation for 324 girls, in the New Road, South Chingford, Essex. Mr. W. Stair, architect. 9 Queen Victoria Street, London, E.C. Send applications and £4 4*s*. deposit by Sept. 23 to Mr. H. J. Goodwin, clerk to District Sub-committee, High Road, Loughton.

Chipstead Common.—Sept. 27.—For alterations and additions to the Children's Homes (recently known as The Rock), Chipstead Common, near Sevenoaks. Deposit £1 1*s*. Mr. Ernest Pawley, architect, 86 High Street, Sevenoaks.

Denton (Lancs.).—Oct. 19.—For erection of an elementary school at Denton (Duke Street), for 778 scholars. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Dorchester.—Sept. 27.—For general repairs at the head gardener's house, Borough Gardens. The Borough Engineer.

Durham.—For the erection of proposed chapel at St. Hilda's College. Deposit £2 2*s*. Messrs. Joseph Potts & Son, architects, 57 John Street, Sunderland.

Edinburgh.—Oct. 4.—The Commissioners of His Majesty's Works and Public Buildings are prepared to receive constructional schemes and tenders based thereon for the erection of reinforced concrete floors, roofs, beams, columns, staircases, &c., in connection with the Royal Scottish Museum New Administration Offices. Any system or systems of construction may be adopted for the whole or any part of the work. Full details must be furnished immediately for examination, if necessary. Deposit £1. The conditions of contract may be inspected at H.M. Office of Works, 3 Parliament Square, Edinburgh; or at H.M. Office of Works, G.P.O., Glasgow.

Edlington.—Oct. 5.—The West Riding Education Committee invite whole or separate tenders for the following works in connection with the Edlington new school, namely, builder, joiner, tiler, plumber, plasterer, painter, and ironfounder and smith. The Education Architect, County Hall, Wakefield; or the Divisional Clerk's Office, Doncaster. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Elworth.—Sept. 25.—For erection of proposed Wesleyan Chapel and school at Elworth, near Sandbach. Messrs. A. Price & Son, architects, Sandbach.

Failsworth.—Oct. 19.—For erection of an elementary school at Failsworth (Minor Street), near Manchester, for 1,000 scholars. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Farnham.—Sept. 27.—For making certain alterations and additions to maternity ward, Farnham Infirmary, for the Guardians. Messrs. Friend & Lloyd, architects, Aldershot.

Glanton.—Oct. 2.—For alterations and improvements to the church and manse, for the Presbyterian Church of England at Glanton, Northumberland. Mr. G. Reavell, jun., A.R.I.B.A., Alnwick and Morpeth.

Glasgow.—Sept. 25.—For the extension of Glasgow General Post Office, for the Commissioners of H.M. Works and Public Buildings. Tenders are required for the whole work and not for separate trades. Deposit £1 1*s*. His Majesty's Office of Works, General Post Office, Glasgow, and H.M. Office of Works, 3 Parliament Square, Edinburgh.

Glasgow.—Sept. 26.—For the following works in connection with the new Epileptic Colony, East Muckcroft, Chryston, for the Glasgow Parish Council, namely: (1) Slater work, (2) plasterer and concrete work, and (3) plumber work. Deposit £2 2*s*. Mr. J. R. Motion, inspector and clerk, 266 George Street, Glasgow, or the Architect's Office, Parish Council Chambers.

Golcar.—Sept. 27.—For the various works required in erection of a dwelling-house in Swallow Lane. Mr. A. Shaw, architect, Golcar.

Goole.—Sept. 27.—For the raising of the Pollington waterworks chimney thirty feet. The Gas and Water Engineer, Council Offices, Goole.

Gosport.—Sept. 27.—For the construction of a menage at Gosport for the Territorial Force Association, county of Southampton. Messrs. Rake & Cogswell, architects, Prudential Buildings, Portsmouth.

Grange-over-Sands.—For the various works required in building a doctor's residence at the Meathop Sanatorium. Mr. J. Hutton, M.R.S.I., architect, Kendal.

Handsworth, &c.—Oct. 10.—For erection of stables for the Great Western Railway Company, at Handsworth, Wednesbury, and Langley Green. The Engineer, Wolverhampton Station, Wolverhampton.

Hayward's Heath.—Sept. 25.—For erection of classrooms and cookery-room, and other work in connection therewith, at the Hayward's Heath public elementary Council school, East Sussex. Send names and addresses, by Sept. 25, to Mr. F. J. Wood, county surveyor, County Hall, Lewes.

Hebburn.—Sept. 30.—For the construction and erection of a light steel bridge across the Wallsend and Hebburn Coal Co.'s railway at the foot of Dunston Street, for the Urban District Council. Mr. H. Paterson, surveyor, Council Offices, Hebburn.

Hull.—Sept. 30.—For one or two shelters and pavilions, to be erected on the playing fields at Pickering Park. Mr. A. E. White, M.I.C.E., city engineer, Town Hall, Hull.

Ireland.—Oct. 2.—For building a professor's house and gate lodge and making alterations to Magee College, Londonderry. Messrs. Robinson & Davidson, C.E., A.R.I.B.A., Richmond Street, Londonderry.

Ireland.—Oct. 3.—For building a goods store at their Edward Street station, Newry, for the Great Northern Railway Co. (Ireland). The Chief Engineer's Office, Amiens Street Terminus, Dublin, and the District Engineer's Office, Belfast. Send £2 2*s*. deposit to Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

Keighley.—Sept. 23.—For erection of a motor works at Keighley. Send names by Sept. 23 to Messrs. J. B. Bailey & Son, architects, 3 Scott Street, Keighley.

Kendal.—Sept. 28.—For making out further sick wards, alterations, and considerable renewals and repairs at the workhouse. Mr. S. Shaw, F.R.I.B.A., architect, Kendal.

Ledsham.—Oct. 7.—For erection and extension of farm buildings on the Ledsham Estate, Ledsham, Cheshire. Deposit £1. County Council Land Agent, County Estate Office. 49 Northgate Street, Chester.

Liscard.—Sept. 29.—For erection of a sorting office at Liscard, Birkenhead, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. The Postmaster, Birkenhead, or H.M. Office of Works, &c., Storey's Gate, S.W.

Liverpool.—Sept. 26.—For slating at the cottage homes, Wavertree, for the Select Vestry. Mr. G. W. Coster, vestry clerk, Parish Offices, Liverpool.

Liverpool.—Sept. 30.—For electric lifts, electric lighting, and sanitary fittings in connection with alterations at present being carried out at the workhouse, Brownlow Hill, for the Select Vestry. Send in names by Sept. 30. Mr. G. W. Coster, vestry clerk, Parish Offices, Brownlow Hill, Liverpool.

London.—Sept. 25.—For building two sanitary conveni ences (above ground) at Mortlake, for the Barnes Urba District Council. Mr. G. B. Tomes, A.M.I.C.E., surveyor Council House, High Street, Mortlake.

London.—Sept. 27.—For repairs to roofs and gutters a the Fountain Hospital, Tooting Grove, S.W. Deposit £1 Mr. W. T. Hatch, M.Inst.C.E., engineer-in-chief, Metro politan Asylums Board Offices, Embankment, E.C.

London.—Sept. 27.—For the extension of the dining-ha at their workhouse, at 5 Woodfield Road, Harrow Road, W for the Paddington Board of Guardians. Deposit £3. M E. Howley Sim, architect, Mowbray House, 14 Norfol Street, Strand, W.C.

London.—Oct. 5.—For the extension of the land registr for the Commissioners of H.M. Works and Public Building Deposit £1 1*s*. H.M. Office of Works, Storey's Gat London, S.W.

Newport (Mon.).—Sept. 26.—For the construction latrines and play-shed at intermediate schools, Queen's Hil Mr. C. F. Ward, A.R.I.B.A., borough architect, Town Hal Newport. Send £1 1*s*. deposit to the Borough Treasure Town Hall.

Norwich.—Sept. 26.—For erection of office buildings Duke Street, for the Electricity Committee. Deposit £2 2 The City Electrical Engineer, Duke Street.

Ottershaw.—Oct. 2.—For erection of a home for childre on a site in the grounds of the workhouse, for the Guardia of Chertsey Union. Deposit £1. Mr. H. E. Paine, cler 80 Guildford Street, Chertsey.

Poole.—Oct. 2.—For constructing wooden steps at San banks, for the Harbour Commissioners. Mr. H. Kenda M.S.A., architect and surveyor, Poole.

Preston.—Sept. 30.—For alterations and additions buildings in Syke Street, to adapt them as headquarters f the 4th Battalion Loyal North Lancashire Regiment, for t West Lancashire Association. Mr. J. P. Fraser, archite 14 Elliot Street, Liverpool.

Scotland.—Sept. 25.—For the carrying out of the vario works in connection with the provision and construction a refuse destructor installation for efficiently burning wi out nuisance the refuse of the city, for the Aberdeen To Council. Mr. W. Dyack, M.I.C.E., burgh surveyor, To House, Aberdeen.

Scotland.—Sept. 26.—For the excavator, concrete found tion, and masonry underbuilding work at the new Traini College, Park Place, Dundee. Mr. T. Martin Cappon, arc tect, 32 Bank Street, Dundee.

Scotland.—For mason, joiner, iron, plumber, plast slater, and painter work required in connection with t erection of proposed police station, Newcraighall, M Lothian. Mr. R. M. Cameron, architect, 53 Great Ki Street, Edinburgh.

Seabrook (Kent).—Sept. 25.—For slight alterations the Court House at the Police Station. Mr. F. W. Ru county architect, 86 Week Street, Maidstone.

Sheffield.—Whole tenders are invited for works requi in erection of shops and office buildings in Holme Lane, H boro'. Deposit £2 2*s*. Mr. J. W. Winter, archite St. Peter's Close, Sheffield.

Stockport.—Oct. 16.—For erection of a central libra for the Corporation. Deposit £2 2*s*. Messrs. Bradshaw Gass, architects, 19 Silverwell Street, Bolton; or Mess Hewitt & Son, quantity surveyors, 33 Brazennose Str Manchester, and 35 Great Underbank, Stockport.

Swanland (Yorks.).—Oct. 2.—For (Contract No. 2) demolition of the existing engine-house at Swanland and rebuilding of the same, the lining of the top of the well w brickwork, the bedding of padstones in the well to ca girders, and the raising of the Swanland water tank by feet, for the Sculcoates Rural District Council. Mr. W. Wellsted, M.Inst.C.E., engineer to the Council, Wate Chambers, Hull.

Wales.—Sept. 30.—For alterations to existing cotta and the erection of three new cottages at Pant-y-walin. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Sept. 26.—For alterations and additions houses, corner of Clyde Street and Commercial Street, Ri Messrs. T. E. Richards & Kaye, architects, Market Squ Chambers, Pontypridd.

Wales.—Sept. 30.—For alteration to 6 Castle Hou Troedyrhiw. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Oct. 9.—For erection of five concrete cottage Gellifaelog, Dowlais, for the Merthyr Tydfil Corporati Deposit £1 1*s*. The Deputy Surveyor, Town Hall, Mert Tydfil.

Wales.—Oct. 10.—For the construction of a new booking office, footbridge, &c., at Crumlin Station, Mon., for the Great Western Railway Company. The Engineer, Newport Station, Mon.

Wareham.—Sept. 25.—For the immediate erection of boundary walls, &c., for the Wareham Burial Acts Joint Committee. Mr. W. Fookes, surveyor, Wareham, Dorset.

Wye Bridge.—Sept. 27.—For alterations and additions to the Wye Bridge, near Ashford, comprising the reconstruction of the footpaths in concrete, parapet, fences, painting, &c. Mr. F. W. Ruck, county architect, 86 Week Street, Maidstone.

Widnes.—Sept. 28.—For the erection of drill hall and fencing, for the West Lancashire Association Territorial Force. Send names at once to Mr. J. P. Fraser, architect, 14 Elliot Street, Liverpool.

TENDERS.

BIRMINGHAM.

For additions to premises, Livery Street and Edmund Street. Messrs. Ingall, Bridgwater & Porter, L.R.I.B.A., architects and surveyors, Birmingham.

Lovatt, Ltd.	£1,505	0	0
Bishop	1,377	0	0
Dallow & Sons	1,325	0	0
Lee & Son	1,320	0	0
Johnson	1,290	0	0
Teall & Son	1,243	0	0
Harper, Birmingham (*accepted*)	1,198	0	0

CHADDERTON (LANCS.).

For works in connection with the erection of the Town Hall and public offices, Middleton Road. Messrs. Taylor & Simister, architects, Oldham.

Excavating, brickwork, &c.

Ogden Bros.	£3,480	0	0
Partington	3,450	0	0
Gerrard & Sons	3,430	0	0
Stephenson	3,286	0	0
Jarvis	3,265	0	0
S. & J. Smethurst	3,223	0	0
Ashton, Squire & Sons	3,214	0	0
Whittaker, Whitworth & Co., Oldham (*accepted*)	3,190	0	0
Davenport & Sons	3,118	15	3

Masonry.

Gerrard & Sons	£2,345	0	0
Ashton, Squire & Sons	2,089	0	0
Davenport & Sons	1,975	0	0
Bebbington & Sons	1,800	0	0
S. & J. Whitehead, Oldham (*accepted*)	1,768	0	0

Slating.

Fletcher	£219	0	0
Ashton, Squire & Sons	210	0	0
Gerrard & Sons	210	0	0
Davenport & Sons	208	6	6
Henshall & Sons	200	0	0
J. Jackson, Oldham (*accepted*)	200	0	0

Carpenter and joiner.

Lees	£2,445	0	0
Gerrard & Sons	2,370	0	0
Ashton, Squire & Sons	2,342	0	0
Schofield & Co.	2,290	0	0
Whittaker	2,230	0	0
Henshall & Sons.	2,200	0	0
Ashton, Oldham (*accepted*)	2,104	0	0
Davenport & Sons	1,920	16	9

Plasterer.

Kelly	£1,248	0	0
Pearce, Oldham (*accepted*)	1,218	0	0
Davenport & Sons	1,065	0	0
Gerrard & Sons	1,059	0	0

Plumbing and glazing.

Davenport & Sons	£2,373	10	0
Ashton, Squire & Sons	1,660	0	0
Oates	1,585	0	0
Chadwick & Sons	1,580	0	0
Boyd	1,567	4	9
Brierley & Son	1,546	0	0
T. Clark, Chadderton (*accepted*)	1,540	0	0
Gerrard & Sons	1,390	0	0

DOVER.

For the erection of an infants' school at Bulwark Hill, Dover, for the Town Council. Mr. W. C. Hawke, A.M.I.C.E., borough engineer, Dover.

Denne & Son	£3,413	0	0
Paramors	3,323	13	3
Ballard	3,150	0	0
Lewis & Sons	3,087	0	0
Tapley	3,069	0	0
Hayward & Paramor	3,027	0	0
Spinner	3,024	0	0
Denne	2,987	0	0
Barwick	2,944	0	0
Gluyas	2,890	0	0
W. H. Grigg, Dover (*accepted*)	2,872	0	0

DUBLIN.

For new Carnegie Free Library at Shankill, Co. Dublin. Messrs. Doolin & Butler, architects, Dublin. Quantities by D. W. Morris & Co., surveyors, 68 Harcourt Street, Dublin.

Farmer Bros.	£1,101	7	9
H. J. Monks	1,050	0	0
Duncan	983	0	0
Dougan	977	6	8
Kinlen	966	9	7
Mosley	950	0	0
Dowling	927	0	0
H. Pemberton	900	0	0
L. Monks	886	0	0
Geo. Bower, Ballybrack (*accepted*)	856	0	0
B. Pemberton	855	0	0

EXETER.

For alterations and additions at the workhouse laundry. Mr. R. M. Challice, architect, 14 Bedford Circus, Exeter.

Castle	£547	14	0
Setter & Son	543	14	11
Ham & Passmore	527	6	0
Herbert	522	0	0
Popman	519	0	0
Soper (*accepted*)	506	0	0

FARNBOROUGH.

For (*a*) erection of fire station behind the Town Hall; (*b*) private street improvements in Oxford, Yetminster, and Windsor roads. Mr. J. E. Hargreaves, surveyor, Farnborough, Hants.

Fire station.

Johnson	£621	0	0
Watson	620	0	0
Crockerell	612	0	0
Cæsar Bros.	607	0	0
J. Seward	598	0	0
Galsworthy	585	0	0
King	583	13	0
Martin, Wells & Co.	549	0	0
Drowley & Co.	535	0	0
J. & D. Poulter	510	0	0
Kemp & Co.	498	0	0
Smith	450	0	0
Crosley & Co.	425	0	0
Jones Bros., Farnborough (*accepted*)	399	2	6

Private street works.

Farnham Road Preservation Co.	£2,410	12	9
Road Maintenance and Stone Supply Co.	1,641	15	4
Kemp & Co.	1,575	0	0
Norris	1,520	6	1
Watson	1,519	5	11
Wheeler & Co.	1,505	1	5
Ripley, Strong & Co., Farnborough (*accepted*)	1,334	8	2

HANLEY.

For painting the administrative block at the Hospital, Bagnall, for the North Staffordshire Joint Smallpox Hospital Board.

Scarratt	£177	10	0
Brunt	170	0	0
Hughes	165	0	0
Bennett Brothers	155	0	0
Godwin	135	0	0
George Taylor & Sons	102	19	0

The tender of Messrs. G. Taylor & Sons, Newcastle, of £102 19*s*., plus £10 15*s*. for work not included in the tender, was accepted.

HALLING.

For sewerage and sewage disposal works at Halling, Kent, for the Strood Rural District Council. Mr. A. J. Martin, M.I.C.E., F.G.S., engineer, 7 Victoria Street, Westminster.

Wilson	£10,160	0	0
Price	9,845	0	0
Ford	9,595	0	0
Crawford & Sons	9,262	8	2
Fry Bros.	8,466	9	1
Pedrette	8,417	3	7
Airds	8,414	14	1
Kemp Bros.	8,379	0	0
Bell & Sons	8,066	0	0
Wood & Sons	7,888	17	3
Burrows	7,699	0	0
Davies & Co.	7,664	11	7
Wilson, Border & Co.	7,601	0	0
Paramors	7,484	4	3
Wilson & Co.	7,393	8	6
Hardy & Co., Woking (*accepted*)	7,315	5	10
Engineer's estimate	8,432	8	3

HARROW.

For building the proposed new Church of St. Peter's, Harrow, Middlesex. Mr. Geo. H. Fellowes Prynne, F.R.I.B.A., architect, 6 Queen Anne's Gate, Westminster, S.W. Quantities prepared by Mr. R. Henry Hale, F.S.I., of 6 Queen Anne's Gate, Westminster, S.W.

Foster & Dicksee	£9,685	0	0
Holland & Hannen	9,333	0	0
Thomas & Edge	9,136	0	0
Walden & Cox	9,069	8	0
Thompson & Sons	9,000	0	0
Franklins, Ltd.	8,995	0	0
Goddard & Sons	8,897	0	0
Greenwood, Ltd.	8,863	0	0
Prestige & Co.	8,754	0	0
Honour & Sons	8,662	0	0
Dickens	8,490	0	0
Wilkins & Sons	8,489	0	0
Bowman & Sons	8,488	13	7
Longley & Sons	8,248	0	0
Webster & **Cannon**, Aylesbury (*conditionally accepted*)	8,188	0	0

HENLEY-IN-ARDEN.

For works in connection with the Henley-in-Arden and Wootton Wawen sewerage and sewage disposal works, for Stratford-on-Avon Rural District Council. Messrs. Willcox, Raikes & Reed, engineers, Birmingham.

Airds	£6,863	0	0
Thompson & Co.	6,334	4	5
Chamberlain	6,328	0	0
Trentham	6,100	0	0
Vale & Co.	6,064	11	0
Currall, Lewis & Martin	5,869	0	0
Price & Co.	5,764	0	0
Brebner & Co.	5,760	0	0
Elliott & Co.	5,693	16	10
Childs Withers	5,630	9	5
George Holloway	5,575	0	0
Boswell	5,301	9	8
Morley & Sons	5,243	19	2
Alfred Hill & Co.	5,220	0	0
Buckley	5,196	15	8

HURSLEY.

For the erection of four pairs of cottages on the Hursley Estate, near Winchester. Cottages designed by Mr. J. E. Thorold, agent to Hursley Estate.

W. J. Hood	£2,931	7	0
W. H. Paul	2,630	0	0
Musselwhite & Sapp	2,587	0	0
John Franklin	2,570	0	0
L. W. Bushell	2,508	13	10
T. Grace	2,320	0	0
J. **Nicholl** & Co., Southampton (*accepted*)	2,234	0	0
H. W. Adams	2,200	0	0
Hales Bros.	2,160	0	0
T. Draper	2,106	0	0
W. Jupe	1,975	0	0
E. G. Garnett	1,889	10	6
O. J. Smith	1,825	0	0
C. A. Hutchings	1,790	0	0
W. Harris	1,740	0	0
Parker & Cripps	1,660	0	0

PORTSLADE.

For constructing a ward block and other work at the Infectious Diseases Hospital, for the Hove Town Council. Mr. H. H. Scott, borough surveyor, Hove.

J. & M. **Patrick**, Wandsworth (*accepted*).	£2,579	0	0

ST. ALBANS.

For the erection of quarters for the night nurses at the workhouse.

Tacchi & Burgess	£440	0	0
Blow & Peters	434	3	9
Goodchild	431	0	5
Dumbleton	427	6	0
Gibson & Co.	395	0	0
Hammond & Son	393	11	0
Skelton	390	0	0
Miskin & **Son**, St. Albans (*accepted*)	376	0	0

SCOTLAND.

For the various works required in the erection of a school at Aberhill, Methil, for the Wemyss School Board. Mr. G. Charles Campbell, architect, East Wemyss.

Accepted tenders.

J. Farmer, Methil, mason.
D. Dewar, joiner.
W. Currie, slater.
J. & T. Stobie, plasterers.
Thomas M'Farlane, painter.
W. Nicoll, plumber.
Barnet & Morton, iron work.
T. Coutts, glazier.
Allan & Son, tile work.

The cost of the school will be about £10,000.

SUTTON.

For the erection of sanitary annexes and alterations to laundry at the Belmont Workhouse, Sutton, Surrey, for the Metropolitan Asylums Board.

Ronald	£3,218	0	0
Gritsell	3,175	0	0
Jennings	3,150	0	0
McLaughlin & Harvey	2,449	0	0
Chessum & Sons	2,427	0	0
Hampton	2,370	0	0
F. & G. Foster	2,353	0	0
Cropley Bros.	2,294	0	0
Knight	2,276	0	0
Wall	2,270	0	0
L. **Kazak**, Belvedere (*accepted*)	2,195	0	0

TWERTON (SOMERSET).

For the erection of a bakery, for the Co-operative Society.

Long & Son	£2,983	0	0
Hayward & Wooster	2,837	0	0
Chancellor & Sons	2,758	0	0
Blackmore	2,757	1	5
Erwood & **Morris**, Bath (*accepted*)	2,740	0	0

WALES.

For erection of boiler house, two fives courts, and general improvement to yards at the intermediate school, Merthyr Tydfil. The Deputy Surveyor, Merthyr Tydfil.

J. T. **James**, Penydarren (*accepted*)	£469	10	0

ART COMPETITIONS AT OLYMPIAD, 1912.

The Fifth Olympiad (which will be held at Stockholm next year) will include competitions in architecture, sculpture, painting, music and literature.

The jury can only consider subjects which have not been published or exhibited before, and which have some direct connection with sport.

To the winner of each of the five competitions will be awarded the prize medal of the Fifth Olympiad. The exhibits selected will, as far as possible, be exhibited, published or performed during the Olympic games.

Competitors must notify their intention to enter for one or more of these competitions before January 15, 1912, and the exhibits themselves must be in the hands of the jury before March 1, 1912.

No limitations of size or form are laid down for manuscripts, plans, drawings or canvases, but sculptors are required to send in clay models not exceeding 80 centimetres in height, length and breadth.

For further information as for forms of entry application should be made to M. le Président du Comité, International Olympique, 20 rue Oudinot, Paris; or to Olympiska Spelen, Stockholm.

LABOUR CONDITIONS IN THE UNITED STATES.

The latest report received from His Majesty's Consul-General in New York with special reference to affairs in the States of New York, New Jersey, Rhode Island, and Connecticut, contains an amount of interesting information about the state of the country in general. Additional importance attaches to it from the fact that many of the matters dealt with are also prominent in the minds of employers in this country.

On the subject of an eight-hour day, Mr. Consul-General Bennett writes:

Under section 2 of the New York Law of February 17, 1909, amended by the Act of January 1, 1910, it is enacted: "Eight hours shall constitute a legal day's work for all classes of employés in this State except those engaged in farm and domestic service, unless otherwise provided by law. This section does not prevent an agreement for overwork at an increased compensation, except upon work by or for the State, or municipal corporation, or by contractors or sub-contractors therewith." In the case of Ellis *v.* United States, 1907, the operation of section 2 was held to be limited to public works. Broadly speaking, the law in question is now limited by legal decision to all labour performed on public works by labourers, workmen, and mechanics, and is effective upon work done by or for the State and any or all of its sub-divisions. The courts have held that its provisions do not extend to cover supplies purchased in the open market for use upon such public works, nor to manufactured material used in connection therewith, unless such material is manufactured by the principal engaged upon such work.

The doctrines of property in labour and freedom of contract, which are held to be inalienable rights, have prevented the law from being otherwise generally applied in a compulsory manner, except in cases where, as a measure of public power, the work is held to be of a character detrimental to public interests, such as the use of dangerous chemicals, &c.

The fact, however, that a man who has a Government contract can only work his men for eight hours a day on that contract, whilst he can work them ten hours or more, by consent, on any other work carried on at the same time, reacts upon his men who are not engaged in contract work, and, in practice, brings about a reduction of their hours. The same is noticed in all callings. The tendency is to reduce hours, and there is no doubt that the eight-hour day is more generally observed than formerly. Hours of labour in brickyards, on steam, surface, and elevated roads and bakeries, are reduced, under the law, to ten hours a day.

Eight certain legal holidays are fixed for each year, and there are others, generally about four on a yearly average, on days fixed by the President or by the Governor of the State, all, of course, exclusive of Sundays.

It is said that some years ago an Englishman who had been courteously conducted over a large American manufacturing establishment asked, on his return to the manager's office, "And where do you put your elderly men?" The manager grimly replied, "Take a cigar and get your hat. We'll go down to the cemetery." This story is recalled by another part of the report, dealing with the effects of the climate on labouring men. The climate of New York State, says Mr. Bennett, is one of almost tropical heat in summer, with extremely low temperatures in winter. Added to this there is at times an extreme dryness of the atmosphere. The dry air has a marked effect upon the system. It vivifies and stimulates energy. This fact has been noticed by British athletes who have competed in the States. At the same time the energy developed urgently calls for a different diet. Meat three times a day is taken to equalise the energy put forth, and, incidentally, a craving is created for fatty foods, such as butter, and especially for iced water. It may have been noticed that although Americans, and indeed foreigners in the United States, drink iced water largely when in the States, the habit is usually dropped when in Europe.

Every worker in America contrives to put more energy into his work than does the European labourer in his own country. "Speeding," perhaps, is partly responsible for this. But the reserve of energy in a man is no greater in an American than it is in a European. The stock of American energy, consequently, is exhausted more rapidly. At between forty and fifty, when a European workman is at his best, the American frequently breaks down, physical exhaustion, dyspepsia, or nervous prostration follow, and the man's life as a worker is done. His place is taken by a younger man, and, so long as an abundant supply of labour comes in through the stream of foreign immigration, the vacant places can be easily filled. If that stream stops there will not be so much heard of the superiority of the American working man, for America would then have to depend upon her own children, whose stock of vitality and energy is no greater than that of their parents, whether American or foreign.

Unskilled labour is generally left to the Hungarians, Italians, and Russians, who are frequently worked through "gangers" of their own nationality.

The wages continue to get higher and the hours shorter. But, as it is pointed out, whatever the justification for a demand for higher wages may be, in the result the consumer pays for the increase. And the increased price of production reacts upon the workman's wages. As he has to pay more for his rent, his food, his clothing, it is doubtful whether the purchasing power of his higher wage is as great as was that of the lower wage earned when expenses were less. There is apparently no escape from the clutch of this endless chain except by securing increased efficiency in manufacturing processes, and thereby cheapening production, and, at the same time, creating a similar result by lessening the cost of the raw material.

In all branches of the building industry the usual number of hours of labour per day is eight, it being in this respect unique among those mentioned in the report. And it is likewise unique in having no low-grade wages. The weekly wages for the different branches are as follows: Bricklaying from 33 to 60 dollars, plastering 33 dollars, painting and decorating 21 to 24 dollars, carpentry, tile-setting, steam and hot-water fitting, plumbing and gasfitting are all 30 dollars, electrical contracting 24 dollars, and structural ironwork from 15 to 27 dollars.

There is in the United States as a whole considerable unrest in labour circles. So far as the State of New York is concerned, there have been nearly twice as many strikes and lock-outs during the second quarter of 1910 as there were in the corresponding period in 1909. Thirty-five strikes were won by the workmen, 46 by the employers, 33 were compromised, and 7 were pending at the last report. The disputes resulting in favour of the employers involved 10,544 employés, while those won by the workmen or compromised involved 12,504. Thus there is no great balance in favour of either side.

A new Workmen's Compensation Act of the State of New York came into operation on September 1 of last year, and its constitutionality was at once attacked in the courts. The issue was first raised before the Supreme Court of Erie County, and the decision was a sweeping affirmation of its constitutionality, the defendants' plea on the grounds of deprivation of liberty and property without due process of law, denial of equal protection of laws, violation of right of trial by jury, and limitation of amount recoverable for injuries resulting in death, being unequivocally denied on all points. The principal attack was made upon the Act on the ground that it imposes liability without fault. The court admits that it is "not clear beyond peradventure" that the Legislature "has the power to deal with the question of employers' liability on a basis other than fault," but "every presumption is in favour of the constitutionality of the Act."

Three decisions concerning the legality of the closed shop have recently been delivered.

In the first Mr. Justice Gough, of the Supreme Court, in connection with the cloakmakers' strike, where the question as to whether a strike for a closed shop against an employer by his own employés was lawful, held that such a strike, at least under the circumstances in the cloakmakers' strike, where the strike extended to the whole trade in the locality, constituted an illegal conspiracy "to deprive other men of the opportunity to exercise their right to work."

In the other two cases referred to the question involved was the legality of a strike against an employer for handling goods made by another employer employing non-union hands. One of these arose in connection with the shirt-waist makers' strike of last autumn, and resulted in a decision by Mr. Justice Gerard, of the Supreme Court, holding that such a strike is an unlawful interference with the right of the employer to pursue a lawful trade or calling. The third case grew out of a strike of union carpenters on the new cathedral of St. John the Divine, in New York city, against the use of building material manufactured by a non-union firm in Massachusetts, and injunction proceedings in this case called forth a decision by Circuit Judge Ward, of the United States Circuit Court, holding such a strike illegal.

Mr. J. S. Rubinstein will read a paper entitled "The Land Transfer 'Scandal'" at the annual provincial meeting of the Law Society to be held at Nottingham next week.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

BERKSHIRE.
Sunningdale.—Workmen's Institute (Coronation memorial).

CAMBRIDGESHIRE.
Cambridge.—Wesleyan Methodists' Central Church: completion (£20,000).

CHESHIRE.
Bredbury.—Special Subjects Centre, Berrycroft Lane. Messrs. Sankey & Cubbon, F.R.I.B.A. (of Manchester), architects.
Ledsham.—Farm buildings and extensions on the Estate.
Macclesfield.—Council School, Athey Street (£10,000).
Stockport.—Central Library. Messrs. Bradshaw & Gass (of Bolton), architects.

CORNWALL.
Newquay.—Wesleyan Church.
Treviscoe.—Water supply scheme.
Trewellard St. Just.—Wesleyan Sunday School (£1,250).
Truro.—Sewerage scheme. City Surveyor.
Tywardreath.—School.

CUMBERLAND.
Brampton.—Memorial to the late Earl of Carlisle.

DERBYSHIRE.
Duffield.—Water supply scheme (£3,600).
Littleover.—Six houses in the Hollow, Stenson Lane and Varley Road.

DEVONSHIRE.
Okehampton.—Castle restoration. Messrs. Sleeman & Sons, builders.
Plymouth.—Church of St. Mary and St. Mary Magdalene, Cattedown. Sir Charles Nicholson, Bart., F.R.I.B.A., architect; Messrs. Cowlin & Sons, contractors. (Accommodation, 480; cost £3,400.)
Swimming bath at the Millbay Rinkery.
Torquay.—Medical baths.

DURHAM.
Darlington.—Isolation Hospital extension (£1,500).

ESSEX.
Chelmsford.—Additional water supply scheme (£1,000). Mr. T. P. Harrison, borough surveyor.
Chingford, South.—Public Elementary School. Mr. Walter Stair, architect.
Leyton.—All Saints' Church, Capworth Street: restoration.

GLOUCESTERSHIRE.
Forest of Dean.—District Hospital (Dilke memorial).

HAMPSHIRE.
Eastleigh.—Church extension.

ISLE OF MAN.
Douglas.—Pavilion on the Villa Marine Estate. Mr. Percy Robinson, F.R.I.B.A. (of Leeds), architect (£16,500).

KENT.
Ashford.—House, Queen's Road.
Additions to Brooke Place.
Carpenter's shop, &c., Queen's Road.
Bromley.—Carnegie Library extension (£4,000). Mr. E. Hellicar, A.R.I.B.A., architect; Mr. F. P. Duthoit, contractor.
Sevenoaks.—Rebuilding No. 119 High Street. Mr. E. Pawley, architect.

LANCASHIRE.
Denton.—Elementary School, Duke Street. Mr. H. Littler (of Preston), county architect.
Failsworth.—Elementary School, Minor Street. Mr. H. Littler, architect.
Rawtenstall.—Drill Hall for the Army Service Corps (£10,000).
St. Helens.—Library at Thatto Heath (£3,000).

LEICESTERSHIRE.
Leicester.—North Evington Infirmary.
Tuberculin Dispensary.

LINCOLNSHIRE.
Boston.—Six workmen's dwellings (£1,000). Mr. T. Lake (of Bourne), surveyor.
Bourne.—Swimming baths (£300).
House and show-room at the Bourne Gas Works.
Three houses, West Road.
Burton Pedwardine.—Water supply. Mr. J. T. Barnes (of Sleaford), contractor (£1,450).
Dowsby.—Eight workmen's dwellings (£1,400). Mr. T. Lake (of Bourne), surveyor.
Kirkby Green.—See below.
Pointon.—Four workmen's dwellings (£700). Mr. T. Lake (of Bourne), surveyor.
Scopwick and Kirkby Green.—Water supply works (£1,414). Messrs. Pattinson & Co., contractors.
Scunthorpe.—Extensions to business premises, High Street. Mr. W. H. Buttrick, P.A.S.I., architect.

MIDDLESEX.
Headstone.—St. George's Church: chancel, morning chapel, transept, vestries, &c. (£1,700).

NORFOLK.
Aylsham.—Cemetery cottage additions. Mr. J. H. Tuddenham, architect.
Corpusty.—Primitive Methodist Chapel: extensive alterations.
Cromer.—Refuse destructor (£1,150). Messrs. Dawson & Manfield, engineers and contractors.

SOMERSETSHIRE.
Bath.—Four houses, Dolemeads (£1,000).
St. Mark's Schools: alterations.
Sewerage scheme for Twerton and Weston (£35,000). Mr. W. H. Radford, engineer.
Taunton.—Hostels, &c., rear of Greenway Road, for Taunton School.
House, Leslie Avenue.
House, Wedlands Terrace.
Sanitary accommodation at the Gymnasium in Mary Street.
(Supplementary to September 15) Public Library extension (£1,500). Mr. D. Edwards, A.M.I.C.E., borough surveyor; Messrs. F. & E. Small, contractors.

STAFFORDSHIRE.
Compton and Tettenhall.—Wolverhampton-Bridgnorth Railway stations.
Wolverhampton.—Electric power station extensions (£6,000). Messrs. Cave & Sons, contractors.

SURREY.
Ash.—Sewerage scheme.
Egham.—Electric power station for the Staines and Egham Electric Lighting Company. Messrs. W. & G. Gray, architects; Mr. James Carmichael, contractor.
Farnham.—Infirmary maternity ward additions and alterations. Messrs. Friend & Lloyd, architects.
Norwood.—Parish Church renovation.
Pyrford.—Sewerage scheme (£7,800).
Woking.—Drill Hall for L. and S.W.R. servants' orphanage.
Technical Institute.
Boys' Secondary School.

SUSSEX.
Hove.—Pier near Fourth Avenue, with hotel, kursaal, theatre, winter garden, &c.
Preston, East.—Workhouse drainage remodelling.
Storrington.—Water supply scheme (£4,500). Major H. Tulloch, C.B., R.E., engineer.

WARWICKSHIRE.
Harborne.—Public baths and electric supply station. Mr. H. E. Stilgoe, M.I.C.E., city surveyor.
Warwick.—Board of Guardians: Home in Wharf Street.
Police Headquarters, Northgate: additions.

WORCESTERSHIRE.
Stourport.—Extensions to the Anglo-American Tin Stamp Works.

YORKSHIRE.
Cowms.—Eight cottages.
Crosland Moor.—Workhouse: Nurses' Home extensions.
Cumberworth, Upper.—Post Office Row additions.
Edlington.—School. Education Architect (County Hall, Wakefield).
Golcar.—House, Swallow Lane. Mr. A. Shaw, architect.
Lepton.—Eight houses, Wakefield Road, Tandem. Messrs. Brook, Dransfield & Dyson (of Huddersfield), architects.
Linthwaite.—Nine houses, Queen's Road, &c.
Club house extensions for Milnsbridge Socialist Club.
Sandhutton.—Sewage disposal works (£600). Messrs. Spinks, Pilling & Rodwell, engineers.
Skelmanthorpe.—Weaving shed at Tenter Croft Mills. Mr. J. Berry (of Huddersfield), architect.

WALES.

Aberdare.—House at Godreaman. Mr. C. H. Elford, architect.

Abergele.—(Supplementary to September 1) Bungalow at Pant Glas. Mr. D. MacNicoll, architect.

Bonymaen.—House, Mansel Road.

Brynmill.—Infants' School extension.

Crumlyn Burrows and Jersey Marine.—Water supply scheme (£8,000). Mr. D. M. Davies, engineer.

Cwmbwrla.—Stables, Cae-Rowlands.

(Supplementary to September 15, under "Swansea") Council School: additions. Mr. G. E. T. Laurence, A.R.I.B.A., Education Committee architect.

Jersey Marine.—See above.

Landore.—Additions to The Willows, Quar.

Morriston.—House in Clase Road.

House in Morfydd Street.

Ogmore Vale.—Offices for the Lewis Merthyr Consolidated Colliery Company, Ltd. Mr. J. T. Jenkins, architect.

Swansea.—Bioscope Hall, High Street.

103 cottages, Trewyddfa Common and Cwm Road. Mr. H. C. Portsmouth, architect.

Two houses in Eden Avenue.

Seven houses in Danygraig, North Hill, Pentrechwyth and Trewyddfa Roads.

Twenty houses in Bernard, Bohun, Cecil and Monterey Streets.

Six houses in Jersey Terrace.

Four houses with shops in Bernard and High Streets.

St. Thomas's School: additions.

Shops in High and Swan Streets.

Siloam Schoolroom, Eaton Road: additions.

Warehouse, Cambrian Place.

Additions to "Penlan," Terrace Road, to 98 Aberdyberthi Street, to 201 Oxford Street, to 31 Page Street and 15 Union Street.

Alterations to 36 Jockey Street.

Taibach.—Carnegie Public Library and Reading Room (£2,400). The Surveyor.

Tirphil.—Temporary Lecture Hall.

SCOTLAND.

Buckie.—Additions and alterations, Cluny Terrace, for Mr. E. Hillocks. Separate contractors.

Chryston.—Epileptic Colony at East Muckcroft.

Dufftown.—Byres, York Street, for Mr. Morison and Mr. Simpson.

Reconstruction of house in Church Street.

Additions to Gordon Villa.

Glasgow.—Buildings in Park Street and Sussex Street.

Greenock.—Six-storey building addition for the Glebe Sugar Refining Company, Ltd.

Rosyth.—Pumping station, power station, boat-house and sub-electric station (£70,000). Sub-let by the naval base contractors, Messrs. Easton, Gibb & Son.

BUILDING SUB-CONTRACT AT ROSYTH.

For the erection of the permanent buildings at Rosyth Naval Base, the principal contractors in the country were invited by Messrs. Easton Gibb & Son to submit offers for a sub-contract. These were received some time ago, and have been checked on behalf not only of the firm but of the Admiralty. Samples of stone were also submitted, and tests applied to them. Inquiries were likewise made as to the producing capacity of the quarries from which the samples were taken. Though missives have not actually been signed, it has been learned on good authority, says the *Scotsman*, that the successful offerers are Messrs. Robert Thorburn & Sons, Edinburgh. No definite figures are available, but it is stated that the execution of the work will involve an expenditure of £70,000. The buildings will consist of a pumping station, an electric power station, a boat-house, and an electric substation. It is understood that the conditions attached to the sub-contract are such as will necessitate the utmost expedition being observed in the execution of the work. The construction of the four buildings will call for the employment of a large number of workmen, both skilled and unskilled, but, if one may judge from the daily appearance of the Labour Exchange at the Ferry Toll, near Rosyth, the sub-contractors should experience no difficulty in finding an ample supply of men of all classes associated with the building industry. Even with the completion of this great establishment, the work on shore will not be nearly finished, as administrative buildings have to be provided for the Admiralty staff, a limited number of whom have been accommodated in temporary premises near Eastlandhill.

VARIETIES.

The Governors of the West of Scotland Agricultural College are considering three alternative schemes for new buildings.

It is proposed to erect a County Council secondary school at Whitley Bay which will accommodate 125 boys and 125 girls, at a probable cost of £14,000.

The death occurred at Southport on September 15 of Mr. R. H. Crabtree, who resided at Southport. A representative of the Bath Stone Firms, Ltd., formerly quarry manager at Portland, Dorset, Mr. Crabtree was much esteemed in the professions both in the North and South of England.

A deputation of the Featherstone Urban District Council to the Wakefield City Council Waterworks Committee report that the committee propose to replace the present main pipes by larger ones, at a cost of about £20,000, and also to make new storage reservoirs at a cost of about £160,000.

The Gosforth Urban District Council have decided to apply to the Local Government Board for a Provisional Order to acquire one acre of land in the vicinity of the old Regent Pit workings as a site for the erection of a refuse destructor. That portion of the land not required for a destructor should be used, it is suggested, as a council store yard.

The Newcastle Education Committee have agreed, subject to the consent of the Board of Education and of the City Council, to accept an offer of Mr. W. D. Cruddas, to sell for £4,200 a piece of land bordering on Scotswood Road and George's Road, comprising 2,062 square yards, as a site for a public elementary school to accommodate 1,000 children.

The South Manchester Board of Guardians, in consequence of representations by the Local Government Board, propose that two two-storey blocks to provide room for 100 children should be erected; that there should be an extension of the male lunatic wards; that two new wings should be added to the present nurses' home to provide accommodation for 100 nurses.

Mr. Arthur W. Bradley, A.M.Inst.C.E., of Bury, has been recommended out of a large number of candidates for the position of borough engineer and surveyor of St. Helens at a salary of £600 per annum. Mr. Bradley has been borough engineer and surveyor of Bury for twelve years, and for seven years prior to that he was the Bury deputy borough engineer.

The Highways Committee of the Mansfield Town Council have conditionally approved the plans of a building estate proposed to be laid out in the vicinity of the new Rufford Colliery near the town. The condition is that the owners undertake to throw out land to make the streets 36 feet wide, without cost to the Corporation, if required at any future time, subject to the roadways being made 20 feet wide at the present time.

The Rev. F. Rothwell Dean, rector of St. Elisabeth's Church, Reddish, referring to harvest festival services, warns church decorators of the dangers of vandalism. Many beautiful churches, he says, have been utterly spoilt by the intervention, on these occasions, of lady amateur decorators, who, armed with hammer, tacks, and wire, destroy the most beautiful wood carvings, as well as stone and marble decorations, through their appalling ignorance of what is already too artistic to be touched.

The Garden Cities and Town Planning Association, 31 and 32 Birkbeck Bank Chambers, Holborn, London, W.C., is prepared to arrange for lectures, with or without lantern slides, in any part of the country, illustrating the progress of the town planning movement at home and abroad and the great development in the adoption of garden city principles. A number of well-known authorities on town planning generally and upon the Town Planning Act have consented to lecture for the Association, and arrangements are now being made for the winter months. Applications will be considered from any public body or any institution or society taking interest in the subject, and dates will be allotted in order of priority. Applications for particulars should be made to the secretary, Mr. Ewart G. Culpin, as above.

The School of Art Wood-Carving, 39 Thurloe Place, South Kensington, which is under royal patronage, has been reopened after the usual summer vacation, and we are requested to state that some of the free studentships in the evening classes maintained by means of funds granted to the school by the London County Council are vacant. The day classes of the school are held from 10 to 1 and 2 to 5 on five days of the week, and from 10 to 1 on Saturdays. The evening class meets on three evenings a week and on Saturday afternoons. Forms of application for the free studentships and any further particulars relating to the school may be obtained from the Secretary.

VARIETIES.

THE Bothwell (N.B.) School Board on Monday agreed to erect a manual workshop, wash-house, and laundry at Uddingston, at an estimated cost of £2,250.

THE Essex Territorial Force Association has decided to embody in future contracts for buildings and ranges a clause to the effect that none but British workmen be engaged.

THE Whitley and Monkseaton Urban District Council last week passed plans for the laying out of four fields on the Red House estate, Monkseaton, showing 750 semi-detached villas.

THE Stockport Board of Guardians are considering a recommendation that a competition be organised in order to obtain plans for the proposed mental wards, which are expected to cost about £30,000.

THE Directors of the Arbroath Infirmary have instructed a special committee to obtain plans and estimates of the proposed reconstruction of the Infirmary buildings. The cost is expected to be between £7,000 and £8,000.

THE activity in the building trade which characterised the whole of last year and a portion of 1909 continues in Johannesburg. Several big works are nearing completion, but numerous large buildings are still on order.

A SITE has been purchased in Poyser Street, Wrexham, for the erection of a new church to replace the present building in the old Ruthen Road Cemetery. A sum of £3,600 is being collected by the organisers of the church extension scheme inaugurated three years ago.

THE Streets and Sanitary Committee of the Exeter City Council recommend that the surveyor prepare detailed plans and specifications for eight houses, with gardens, on the vacant land belonging to the Council in Willey's Avenue. The accommodation of each house is to consist of two living rooms, with scullery and three bedrooms.

THE Devon Education Committee have accepted the following tenders in respect of improvements and repairs:—Axminster School, J. Bazley, £221; Culmstock School, W. Andrews, £133; Dawlish School, F. Friend, £283; Ide School, Nicks Bros., £265; Marwood School, £208; Curledge Street School, Paignton, H. Drew, £745.

AT a recent meeting of Sleaford Rural District Council the tender of Mr. J. T. Barnes, of Sleaford, to construct the Burton Pedwardine waterworks for £1,450 was accepted. Messrs. Pattinson & Co.'s (Ruskington) tender of £1,414 for the Scopwick waterworks was also accepted. A tender was also accepted for building a bridge at Osbournby.

A LOCAL Government Board inquiry was held at Bourne last week relative to the Rural Council's application for sanction to borrow sums of £1,500, £1,030, and £700 for schemes under the Housing of the Working Classes Act at Dowsby, Baston, and Pointon. The loans in the three instances aggregate £3,230 for a total of 18 houses.

MR. E. L. LUTYENS is the architect for the new headquarters of the Theosophical Society to be erected in London. It is proposed to erect a large building on the vacant land between Tavistock Square and Burton Street, and the site of Nos. 1, 2, and 3 Crescent Place, 12 Burton Street, 1 Upper Woburn Place, and 19 and 19a Tavistock Square. The cost is estimated at between £30,000 and £40,000.

THE Committee of the Glasgow City Improvements Trust recommend the Corporation to apply for Parliamentary powers to borrow £100,000 for the purposes of the Trust. Among the objects for which the proposal is made are the completion of the buildings being erected in Bell Street and High Street, and the reconstruction of the Old Tontine buildings in Trongate destroyed by fire on the 4th inst.

THE Stockport Corporation have decided to apply to the Local Government Board for sanction to borrow £30,000 for the erection of new police buildings and courts. The Corporation, it will be remembered, recently held a competition for this work, and the first place was awarded to the design of Messrs. J. Theo. Halliday & Claude Paterson, AA.R.I.B.A., of Stockport and Manchester.

MR. C. ORME BASTIAN, the well-known electrician, has invented an entirely new principle of electric heat storage by means of which a small, portable thermal storage chamber or "hot-box" can gradually be charged at an infinitesimal cost with electrical heat, which can then be utilised for the heating of rooms or for cooking purposes. The apparatus forms the subject of a special article in this week's *Electrical Engineer*, which also describes the inventor's method of generating electricity by means of a small wind turbine and dynamo in localities where no power station supply is available. The complete apparatus can in such cases be set up in a country house for about £25, while the "hot-box" for use either with the ordinary mains or the wind turbine can be sold for £1 and upwards, according to size.

THE London County Council invite applications before October 7 for the position of a full-time principal for the L.C.C. Central School of Arts and Crafts, Southampton Row, W.C., at an annual salary of £1,200. In addition to high qualifications as a practical artist it is expressly stated that administrative and organising ability is essential. The principal must also be in touch with the industrial application of the work of the school.

THE Works Committee of the Dundee Town Council on the 20th inst. approved of the following plans:—Cobden Street—Semi-detached cottages for Dr. Williamson; East Haddon Road—Semi-detached cottages for Thos. C. Stocks; Park Place—Training College and School for the St. Andrews Provincial Committee for the training of teachers. The architect for the last-named work is Mr. T. Martin Cappon, F.R.I.B.A., of Dundee, and the estimated cost is £60,000.

A COMPETITION has been opened by the Cuban Government for the erection at Havana of an equestrian statue of the Cuban General Maceo. Plaster models should be sent to the "Comisión Ejecutiva, Monumento al General Antonio Maceo, Secretaría de Instrucción Pública y Bellas Artes," Havana, before January 20, 1912. The sum of 100,000 pesos (about £20,600), has been voted for the work. British sculptors proposing to compete should first put themselves into communication with the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C., where also further particulars (in Spanish) may be seen.

AT a recent meeting of the Water Sub-Committee on Finance of the Glasgow Corporation there was submitted a statement by the treasurer showing that the unexhausted borrowing powers under the Glasgow Corporation Water Acts as at May 31 last amounted to £185,000, and that a sum of £479,200 would be necessary to meet the requirements of the department in the next few years. The sub-committee, having considered the statement and heard the engineer in regard thereto, agreed to recommend that application be made to Parliament, in the ensuing session, for authority to borrow a further sum of £300,000 for the completion of the works in progress and for extensions of the existing works.

THE proposals of the Post Office authorities as to the erection of a new General Post Office for Rochdale have now been submitted to the Corporation. The plans provide for a spacious building, the estimated cost of which is £20,000, and the Department state they are prepared to erect the building on a site nearly opposite the Town Hall, on condition that the Corporation extend the covering over the river in order to provide a proper frontage, and contribute £200 towards the cost of additional stone work, which will be necessary to bring the building into harmony with the Town Hall. Although no official estimate has been prepared as to the cost of further covering the river, it is expected to be about £5,000.

TRADE NOTES.

UNDER the direction of Messrs. N. W. Harrison, F.R.I.B.A., & G. A. Harrison, M.S.A., Oxford, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air inlets, has been applied to George Street Congregational Church, Oxford.

THE judges appointed to examine and report on the exhibits at the Festival of Empire have now announced their awards. Messrs. Newton, Chambers & Co., Ltd., of Thorncliffe, near Sheffield, have secured a Grand Prix for their Izal disinfectant preparations, thus adding one more to the remarkable series of highest possible awards obtained by them at international exhibitions at home and abroad. Their exhibit at the Crystal Palace reveals the multifarious purposes—medical, surgical, veterinary, horticultural and domestic—for which Izal is offered to the public.

A FINE tower with clock and bell showing the time on four illuminated dials has been placed in the Holbeck Gardens, Scarborough, by a donor. The clock was made and fixed by Messrs. Wm. Potts & Sons, Ltd., Leeds. This firm are making a clock for Sir Tatton Sykes, Bart., for Sherburn Church, near York; a clock and bells for Darwen; and an illuminated clock for Clayton Conservative Club, Lancashire.

MESSRS. GEORGE MILLS & CO., LTD., engineers, Radcliffe, near Manchester, have received the following letter from John Leigh, Ltd., cotton waste merchants, Oldham:—"We are pleased to inform you that in a fire which broke out on the 11th inst. at our Brighton mill the 'Titan' sprinklers you installed for us some time ago acted very satisfactorily indeed. We are convinced that had it not been for their prompt action the mill would have been gutted."

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Barnsley.—Oct. 7.—The Town Council invite competitive drawings for a proposed extension of public baths, including a swimming bath, Russian and vapour baths, and slipper baths, in connection with the existing public baths in York Street and Race Street, Barnsley. The Town Council offer premiums of £50, £30 and £20. Mr. J. H. Taylor, M.I.C.E., borough surveyor, Manor House, Barnsley.

Bristol.—Oct. 31.—The Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

Evesham.—Oct. 7.—The Rural District Council invite designs, with estimates of cost, for laying out a building site at Broadway and the erection thereon of 30 cottages, under the Housing and Town Planning Act, 1909. The architect whose design is accepted will be appointed to carry out the work at an inclusive fee of 5 per cent. Deposit £1 1s. Mr. E. H. Wadams, Clerk, Union Offices, Evesham.

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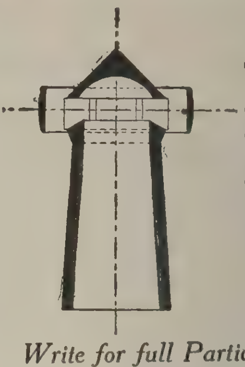

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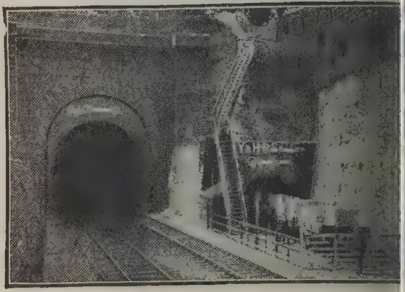

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Coseley.—Oct. 12.—Plans for school for 200 children for the Education Committee, at Dimmock Street, Parkfield, Coseley, W. Dudley. Conditions, one guinea, returnable on receipt of plans. Mr. Fred J. C. Poole, Secretary, Education Offices, Coseley, near Bilston.

Halifax.—Oct. 7.—The Tramways Committee invite designs and tenders for tramway shelters. Particulars, with tracings of sites, can be obtained on application to the Borough Engineer, Town Hall, Halifax.

Hastings.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1*s.* deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

London.—Oct. 31.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1*s.*, which will be refunded on receipt of a bona-fidé design or return of conditions within one month of receipt. All particulars from Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

Murton.—Oct. 4.—The Easington Rural District Council invite plans for three separate types of houses, of which it is proposed to build 100 at Murton Colliery, Durham. The houses to be in streets of twenty with 16 ft. back streets, 18 ft. frontage, and garden ground in front of each house to a depth of 30 ft., an earth closet and outside pantry to be provided for each house. Strict compliance with the Council's by-laws and the Local Government Board regulations will be required. The following are the types of houses:—Type A.—28 ft. gable, three bedrooms, one living room, one sitting room, scullery (offshot), with kitchen range and bath. Type B.—25 ft. gable, three bedrooms, one living room, scullery, with kitchen range and bath. Type C.—Two bedrooms, one living room and scullery, with kitchen range and bath. Appearance and economy of structure will be considered. The successful candidate will receive 2½ per cent. commission upon the net cost of buildings when erected. No other remuneration will be paid. Mr. J. M. Longden, Council Offices, Easington, Castle Eden.

Rochdale.—The Board of Management of the Rochdale Infirmary invite architects practising in Rochdale prior to January 1, 1911, to submit plans, designs, and estimates for extending the present buildings. Conditions of competition, with other information, together with instructions to architects, can be obtained on application to the secretary. An assessor has been appointed by the committee. Mr. T. Elvyn Kershaw, secretary, Secretary's Office, the Infirmary, Rochdale.

Uruguay.—Jan. 30.—The Ministry of Public Works nvite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial ntelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Wales.—The Cardiff Education Committee invite designs and estimates in competition for a technical institute proosed to be erected in Cathays Park. Mr. J. S. Gibson, rchitect, will act as assessor. Full particulars will be sent to architects on application, accompanied by a deposit of £2 2*s.*, which will be returned to all architects submitting ona-fide designs or who return the conditions within six weeks. Mr. J. Jackson, director of education, Education Offices, City Hall, Cardiff.

CONTRACTS OPEN.

Allonby.—Oct. 9.—For the whole of the work required to be done in connection with the erection of proposed new ut-offices to Allonby Council school. Clerk of Works to the Education Committee, 13 Earl Street, Carlisle.

Biggleswade.—Sept. 30.—For erection of new hall and Liberal Club premises in High Street. Deposit £1 1*s.* Mr. W. C. Owen-Jones, architect, Biggleswade.

Birmingham.—Oct. 3.—For the Finishings (second) Contract at the Telegraph Stores, Block C. Deposit £1 1*s.* Mr. J. Tosh, H.M. Office of Works, Pinfold Street, Birmingam, or H.M. Office of Works, Storey's Gate, London, S.W.

Bredbury.—Oct. 7.—For erection of a special subjects centre at Berrycroft Lane, Bredbury, near Stockport. Deposit £1 1*s.* Messrs. Sankey & Cubbon, F.R.I.B.A., architects, 4 Chapel Walks, Manchester.

Bromborough.—Oct. 7.—For erection of Council offices, &c., at Bromborough, Cheshire. Deposit £1 1*s.* Mr. J. Clarke, surveyor to the Council, 34 Castle Street, Liverpool.

Broughton.—Sept. 29.—For erection of a corrugated iron cookery room at Broughton Council School, Hants. Deposit £2 2*s.* Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

Caister-on-Sea.—Oct. 11.—For erection of the proposed infants' school at Caister-on-Sea, Norfolk. Send names and £1 1*s.* deposit by Sept. 26 to Messrs. Olley & Haward, architects, 5 Queen Street, Great Yarmouth.

Camborne (Cornwall).—Sept. 30.—For erection and completion of proposed Sunday school in Trelowarren Street, for the trustees of the United Methodist Church. Mr. S. Hill, architect, Green Lane, Redruth.

Denton (Lancs.).—Oct. 19.—For erection of an elementary school at Denton (Duke Street), for 778 scholars. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Durham.—For the erection of proposed chapel at St. Hilda's College. Deposit £2 2*s.* Messrs. Joseph Potts & Son, architects, 57 John Street, Sunderland.

Edinburgh.—Oct. 4.—The Commissioners of His Majesty's Works and Public Buildings are prepared to receive constructional schemes and tenders based thereon for the erection of reinforced concrete floors, roofs, beams, columns, staircases, &c., in connection with the Royal Scottish Museum New Administration Offices. Any system or systems of construction may be adopted for the whole or any part of the work. Full details must be furnished immediately for examination, if necessary. Deposit £1. The conditions of contract may be inspected at H.M. Office of Works, 3 Parliament Square, Edinburgh; or at H.M. Office of Works, G.P.O., Glasgow.

Edlington.—Oct. 5.—The West Riding Education Committee invite whole or separate tenders for the following works in connection with the Edlington new school, namely, builder, joiner, tiler, plumber, plasterer, painter, and ironfounder and smith. The Education Architect, County Hall, Wakefield; or the Divisional Clerk's Office, Doncaster. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Eltham.—Oct. 4.—For erection of a waiting-room and sanitary conveniences at the tramway terminus. Deposit £1 1*s.* Mr. J. Rush Dixon, M.Inst.C.E., borough engineer, Town Hall, Woolwich.

Failsworth.—Oct. 19.—For erection of an elementary school at Failsworth (Minor Street), near Manchester, for 1,000 scholars. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Gillingham.—Oct. 2.—For erection of a plain greenhouse, 50 feet long and 18 feet wide, with side frames and heating apparatus, in the park. Mr. J. L. Redfern, borough engineer and surveyor, Gillingham, Kent.

Glanton.—Oct. 2.—For alterations and improvements to the church and manse, for the Presbyterian Church of England at Glanton, Northumberland. Mr. G. Reavell, jun., A.R.I.B.A., Alnwick and Morpeth.

Grange-over-Sands.—For the various works required in building a doctor's residence at the Meathop Sanatorium. Mr. J. Hutton, M.R.S.I., architect, Kendal.

Handsworth, &c.—Oct. 10.—For erection of stables for the Great Western Railway Company, at Handsworth, Wednesbury, and Langley Green. The Engineer, Wolverhampton Station, Wolverhampton.

Hebburn.—Sept. 30.—For the construction and erection of a light steel bridge across the Wallsend and Hebburn Coal Co.'s railway at the foot of Dunston Street, for the Urban District Council. Mr. H. Paterson, surveyor, Council Offices, Hebburn.

Houghton-le-Spring.—Oct. 2.—For the construction in Newbottle Street, adjoining the men's convenience there, of an above-ground convenience for women. Mr. J. W. Holbrook, surveyor of the Council, Newbottle Street, Houghton-le-Spring.

Hubberston.—Oct. 6.—For erection of a residence near Hubberston, Milford Haven. Mr. J. B. Gaskell, architect and surveyor, Milford Haven.

Huddersfield.—Oct. 4.—For erection of a shed and additions to Lane Mills, Leeds Road. Mr. J. Berry, architect and surveyor, 3 Market Place, Huddersfield.

Hull.—Sept. 30.—For one or two shelters and pavilions, to be erected on the playing fields at Pickering Park. Mr. A. E. White, M.I.C.E., city engineer, Town Hall, Hull.

Ireland.—Oct. 2.—For building a professor's house and gate lodge and making alterations to Magee College, Londonderry. Messrs. Robinson & Davidson, C.E., A.R.I.B.A., Richmond Street, Londonderry.

Ireland.—Oct. 3.—For building a goods store at their Edward Street station, Newry, for the Great Northern Railway Co. (Ireland). The Chief Engineer's Office, Amiens Street Terminus, Dublin, and the District Engineer's Office, Belfast. Send £2 2*s*. deposit to Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

Ireland.—Oct. 4.—For erection of sanitary annexes at the fever hospital of the Loughlinstown workhouse, for the Rathdown Board of Guardians. Mr. G. T. Moore, C.E., 1 and 2 Foster Place, Dublin, and the Clerk's office, Loughlinstown.

Ireland.—Oct. 9.—For erection of a Carnegie Library and Technical Institute opposite the Town Hall, Rathmines Road, for the Rathmines Urban District Council. Deposit £2 2*s*. Messrs. Batchelor & Hicks, architects, 86 Merrion Square. Messrs. Patterson & Kempster, quantity surveyors, 95 Lower Leeson Street, Dublin.

Ireland.—Oct. 21.—For building a dwelling-house at Newcastle, County Down. Messrs. E. & J. Byrne, architects, 4 Waring Street, Belfast.

Lealholm.—Sept. 30.—For re-roofing ranges of farm buildings at Mount Pleasant Farm, Lealholm, Yorks. Send names by Sept. 30 to Mr. A. E. Young, architect and surveyor, 77 Baxtergate, Whitby.

Ledsham.—Oct. 7.—For erection and extension of farm buildings on the Ledsham Estate, Ledsham, Cheshire. Deposit £1. County Council Land Agent, County Estate Office, 49 Northgate Street, Chester.

Leeds.—Oct. 5.—For the demolition of buildings and erection of public and private conveniences in Tong Road, Upper Wortley. Mr. W. T. Lancashire, city engineer, Municipal Buildings, Leeds.

Leigh-on-Sea.—Oct. 31.—For the erection of a Council school of two departments (mixed 360, infants 320). Send names and £2 2*s*. deposit by Oct. 2 to Mr. Percy Brockbank, architect, 14-15 County Chambers, Southend-on-Sea.

Liverpool.—Sept. 30.—For electric lifts, electric lighting, and sanitary fittings in connection with alterations at present being carried out at the workhouse, Brownlow Hill, for the Select Vestry. Send in names by Sept. 30. Mr. G. W. Coster, vestry clerk, Parish Offices, Brownlow Hill, Liverpool.

London.—Oct. 5.—For the extension of the land registry, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. H.M. Office of Works, Storey's Gate, London, S.W.

London.—Oct. 11.— For cleaning down, restoring, and treating with preservative the stonework of the Passmore Edwards Library, Uxbridge Road, for the Hammersmith Borough Council. Mr. H. Mair, borough surveyor, Town Hall, Broadway, Hammersmith, W.

Macclesfield.—Oct. 17.—For alterations to the existing technical school premises, and the erection of additional premises for a cookery centre and workshops on a site adjoining in Old Park Lane. Deposit £2 2*s*. Mr. W. Grieves, Town Hall, Macclesfield.

Manchester.—Oct. 9.—For the construction of reinforced concrete plunge baths, floors, &c., at the baths, Burton Road, Withington. Deposit £1 1*s*. The City Architect's office, Town Hall.

Middleton.—Oct. 7.—For levelling and laying-out a plot of land for a cemetery at Boarshaw, and for the erection thereon of a mortuary chapel. Mr. T. A. Fitton, architect, 29 Corporation Street, Manchester.

Mold.—Oct. 3.—For erection of a branch shop at Northop Hall, for the Hawarden and District Co-operative Society. Send names and £2 2*s*. deposit by Oct. 3 to Mr. F. A. Roberts, M.S.A., architect and surveyor, Earl Road, Mold.

Nottingham.—Oct. 2.—For new bath and drying rooms at Bulwell Hall Park golf pavilion. Deposit £1 1*s*. to Mr. F. B. Lewis, Guildhall, Nottingham.

Oswestry.—Sept. 30.—For supply of a bandstand proposed to be erected in Cae Glas Park. Mr. A. W. Morris, hon. sec., Coronation Celebration Committee, Oswestry.

Ottershaw.—Oct. 2.—For the erection of a home for children in the grounds of the Chertsey Union Workhouse. The Clerk's offices, 80 Guildford Street, Chertsey.

Poole.—Oct. 2.—For constructing wooden steps at Sandbanks, for the Harbour Commissioners. Mr. H. Kendall, M.S.A., architect and surveyor, Poole.

Preston.—Sept. 30.—For alterations and additions to buildings in Syke Street, to adapt them as headquarters for the 4th Battalion Loyal North Lancashire Regiment, for the West Lancashire Association. Mr. J. P. Fraser, architect, 14 Elliot Street, Liverpool.

Pudsey.—Oct. 3.—For several works required in erection of new weaving shed in connection with Waterloo Mills. Messrs. C. S. Nelson & G. Birkinshaw, architects, Sun Buildings, 15 Park Row, Leeds.

Rotherham.—Oct. 3.—For the whole of the works required in extensions to Montrose works, Rawmarsh Road. Mr. J. Platts, architect, High Street, Rotherham.

Rotherham.—Oct. 3.—For the covering with steel roof principals and corrugated iron of some of the pens at the cattle market, for the Markets Committee. The Borough Engineer, Town Hall.

St. Albans.—Nov. 2.—For erection of six pairs of semi-detached residences for asylum attendants in the grounds of the Middlesex County Asylum, Napsbury. Mr. H. T. Wakelam, county architect, 63 Victoria Street, Westminster, S.W.

Scotland.—For mason, joiner, iron, plumber, plaster, slater, and painter work required in connection with the erection of proposed police station, Newcraighall, Mid-Lothian. Mr. R. M. Cameron, architect, 53 Great King Street, Edinburgh.

Scotland.—Sept. 30.—For the mason, joiner, and plaster work of compressor house proposed to be erected at Kirkcaldy gas works. Mr. J. Kincaid, gas engineer, Gas Office, Kirkcaldy.

Scotland.—Sept. 30.—For mason, carpenter, slater, plasterer, plumber, painter and glazier, and iron works of school for cookery, &c., at Portessie, for the Rathven School Board. Mr. J. Archibald, clerk to the Board, East Church Street, Buckie.

Scotland.—Oct. 2.—For the various building works in connection with additions and alterations to kitchen, laundry, &c., wing at Dumbarton poorhouse. Offerers must be contractors carrying on business within the county of Dumbarton, or within the parishes of Buchanan, Drymen, Kippen, and Port of Monteith, in the county of Stirling.

Selly Oak.—Oct. 2.—For the construction of emergency exits and a store room and for providing spray baths at the public baths, Tiverton Road, for the King's Norton and Northfield Urban District Council. Deposit £1 1*s*. Mr. A. W. Cross, A.M.I.C.E., 23 Valentine Road, King's Heath.

Sheffield.—Whole tenders are invited for works required in erection of shops and office buildings in Holme Lane, Hilsboro'. Deposit £2 2*s*. Mr. J. W. Winter, architect, St. Peter's Close, Sheffield.

Sleights.—Sept. 30.—For erection of a country residence at Sleights, Yorks. Send names by Sept. 30 to Mr. A. E. Young, architect and surveyor, 77 Baxtergate, Whitby.

South Brent.—Oct. 12.—For erection of a dining hall, kitchen, &c., at the Devon and Cornwall Sanatorium for Consumptives, Didworthy, South Brent. Mr. Dan Ward, 7 Courtenay Street, Plymouth.

Stoke-on-Trent.—Oct. 12.—For the following works to be executed at the infectious diseases hospital at Bucknall, for the Rural Joint Hospital Board, viz.: (1) Sixteen-bed isolation block; (2) new annexes and bath-rooms to present blocks; (3) extensions to covered ways. Send names and addresses by Oct, 4 to Mr. E. Jones, M.S.A., architect, 10 Albion Street, Hanley.

Stockport.—Oct. 16.—For erection of a central library, for the Corporation. Deposit £2 2*s*. Messrs. Bradshaw & Gass, architects, 19 Silverwell Street, Bolton; or Messrs. Hewitt & Son, quantity surveyors, 33 Brazennose Street, Manchester, and 35 Great Underbank, Stockport.

Swanland (Yorks.).—Oct. 2.—For (Contract No. 2) the demolition of the existing engine-house at Swanland and the rebuilding of the same, the lining of the top of the well with brickwork, the bedding of padstones in the well to carry girders, and the raising of the Swanland water tank by six feet, for the Sculcoates Rural District Council. Mr. W. H. Wellsted, M.Inst.C.E., engineer to the Council, Waterloo Chambers, Hull.

Templenewsam-Halton.—For the various works required in the alterations at the Templenewsam-Halton Council school, Yorks. Mr. R. J. Smith, Education Offices, Garforth, near Leeds.

Torquay.—Oct. 9.—For the erection of Homelands Council School. (Messrs. E. Appleton & Son, architects, Torquay.) Send names and £5 deposit by Oct. 9 to Mr. F. S. Hex, Town Clerk, Town Hall, Torquay.

Wales.—For erection of business premises fronting Cambrian Road, in the County Borough of Newport. Messrs. Ernest Page & Lister, architects, Crown Chambers, Cambrian Road, Newport, Mon.

Wales.—For erection of warehouse and offices in Cambrian Place, Swansea. Deposit £2 2*s*. Messrs. C. S. Thomas Meager & Jones, architects, Salisbury Chambers, 15 Wind Street, Swansea.

Wales.—Sept. 30.—For alterations to existing cottages and the erection of three new cottages at Pant-y-walin. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Sept. 30.—For alteration to 6 Castle Houses, Troedyrhiw. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Oct. 2.—For the following works at Croesdy and Ysguborwen cottages, Ysguborwen, near Aberdare, for the Glamorgan County Council:—(1) Erection of (*a*) a set of farm buildings, and (*b*) repairs and adaptation to a tenement known as Croesdy, Ysguborwen; (2) erection of (*c*) a cottage and (*d*) set of farm buildings at the holding known as Ysguborwen cottage.. The Police Station, Aberdare, and the County Council Offices, Cardiff.

Wales.—Oct. 3.—For alterations and repairs to three cottages at Albert Street, Merthyr Tydfil. The Borough Surveyor, Town Hall, Merthyr Tydfil.

Wales.—Oct. 9.—For erection of five concrete cottages at Gellifaelog, Dowlais, for the Merthyr Tydfil Corporation. Deposit £1 1*s*: The Deputy Surveyor, Town Hall, Merthyr Tydfil.

Wales.—Oct. 10.—For the construction of a new booking office, footbridge, &c., at Crumlin Station, Mon., for the Great Western Railway Company. The Engineer, Newport Station, Mon.

Wetheral.—For erecting and completing a new house and additions to existing premises. Send names at once to Messrs. Oliver & Dodgshun, architects, Carlisle.

Widnes.—Oct. 14.—For taking down Old St. Mary's Church and for the structural material; also for the organ and church furniture, either separately or in one lot. Rev. G. Stephen Jones, St. Mary's Vicarage, Widnes.

Wood Green.—Oct. 3.—For erection of a new school, Lordship Lane, Wood Green. Apply by Oct. 3 to Mr. W. P. Harding, clerk to the Education Committee, Town Hall, Wood Green.

Yorks.—For carrying out additions and alterations to Church schools, Windhill. Also for additions and alterations to Conservative Club, Bowling Old Lane, Bradford. Mr. T. L. Dixon, architect and surveyor, Bowling Old Lane, Bradford, and Halifax Road, Buttershaw.

The Usher Hall Committee of Edinburgh Town Council met on Saturday in the City Chambers to consider the scheme of internal decoration of the Usher Hall. The architect of the new hall (Mr. Howard H. Thomson, Leicester) was present, and after a discussion the committee approved of the proposal that the decorative scheme should be in Sienna marble, Roman stone, and bronze. With regard to the outside decorative scheme the committee agreed to ask selected sculptors to send in competitive models.

On June 12, 1899, a prominent medical man wrote to the Berkefeld Filter Company as follows:—"I have just returned from a journey in the interior of China, and occasionally the only water that I could obtain was so turbid that one ould not see through it. You will be glad to hear that your Travellers' Pump Filter worked very well, and gave entire atisfaction, affording my companion and myself a constant upply of pure drinking water under circumstances where boiled water was unobtainable. I can heartily recommend the ilter as simple in construction, standing wear and tear, and affording under the most adverse circumstances pure water, afe to drink and free from any objectionable taste. And he fact that we were both in perfect health at the end of ur journey, although travelling in rain and living in native houses, speaks for itself." On September 5 last the same writer of the testimonial called at 121 Oxford Street and olunteered the following unsolicited endorsement of his previous letter:—"After more than ten years' experience of his filter and other filters supplied by the same firm in South China I heartily endorse every word written in my letter f June 12, 1899." The Berkefeld Filter Company are ustly proud of such an emphatic testimonial.

TENDERS.

BIRMINGHAM.

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Webb & Mycroft	1,499	0	0
Gibbs	1,450	0	0
Fenwick	1,450	0	0
Dorse	1,440	0	0
Swift	1,395	0	0
Dallow & Sons	1,390	0	0
Taylor	1,349	0	0
Horton	1,348	0	0
Crowder	1,333	0	0
Rotheroe & Co., Birmingham (*accepted*)	1,297	0	0

BRACKNELL.

For erection of cottage and stabling. Mr. Cecil H. Perkins, A.R.I.B.A., architect, Bracknell, Berks.

Charman	£805	0	0
Brown	761	6	9
Cotterell	685	10	0
Payne & Co.	630	0	0
Davis	628	0	0
Exors. of the late J. B. Seward, Wokingham (*accepted*)	584	0	0

DOVER.

For erection of a girls' school at Barton Road. Mr. W. C. Hawke, A.M.I.C.E., borough engineer, Dover.

Burrows	£5,706	0	0
Ellis Bros.	5,672	10	0
Paramors	5,572	13	0
Denne & Son	5,490	0	6
Denne	5,399	0	0
Austen & Lewis	5,322	9	0
Lewis & Sons	5,292	0	0
Barwick	5,184	12	0
Tapley	5,128	0	0
Hayward & Paramor, Dover (*accepted*)	5,026	0	0

EAST COWES.

For construction of the reservoir, for the Urban District Council.

Mattenson & Sons	£3,992	0	0
Spriggins	3,888	0	0
Bevis	3,700	0	0
Stevens & Co.	3,545	0	0
Brading & Son, East Cowes (*recommended*)	3,300	0	0
Watton & Son	3,194	10	0

IRELAND.

For erection of sixteen artisans' dwellings on two different sites, for the Carlow Urban District Council. Mr. P. P. Carbery, surveyor, Carlow.

Warren	£3,500	0	0
Mitchell	3,478	0	0
Dougan	3,437	0	0
Thompson & Son	3,348	0	0
O'Brien	3,321	0	0
Murphy	3,299	0	0
Dunphy	3,277	0	0
T. & M. Richards	2,950	0	0
Walsh, Carlow (*accepted*)	2,846	0	0

LONDON.

For alterations and additions to Nos. 27 and 28 Pall Mall, for the Daimler Co., Ltd. Messrs. Briant & Son, surveyors, 200 Kennington Park Road, S.E.

Cubitt & Co.	£820	0	0
White, Allom & Co.	591	10	0
Lenn, Thornton & Co.	538	10	0
Patman & Fotheringham	528	0	0
Marsland & Sons, Walworth (*accepted*)	492	0	0

SALISBURY.

For erection of a motor garage and residence. Mr. A. C. Bothams, architect, Salisbury.

Roles & Sons	£1,220	0	0
Harris	1,190	10	0
Kite & Sons	1,153	10	0
Jenkins	1,080	9	0
Dawkins	1,080	0	0
Mitchell	1,080	0	0
Vincent & Follard	1,075	10	0
Wort & Way	1,025	0	0
Smith & Bundy, Bemerton (*accepted*)	970	0	0

SHEFFIELD.

For erection of buildings in Charlotte Street and Portobello Street, for the Department of Applied Science of the University of Sheffield. Messrs. Gibbs, Flockton & Teather, architects, Sheffield.

Dawson, Jones & Co.	£33,659	0	0
O'Neill & Son	33,500	0	0
Car	32,299	0	0
Ash, Son & Biggin	31,850	0	0
Eshelby & Son	31,300	0	0
Sheldon	31,294	0	0
Powell & Son	31,278	0	0
W. & A. Forsdike	31,250	0	0
Freckingham & Sons	31,229	0	0
Wilkinson & Sons	31,120	0	0
Fidler, Ltd.	31,064	0	0
Vasey & Son	30,823	0	0
Longden & Son	30,700	0	0
Unwin	30,448	0	0
Roper & Sons	29,879	0	0
Boot & Sons, Ecclesfield (*accepted*)	29,457	0	0

SUNBURY.

For extensions of Church wharf. Mr. H. F. Coales, Council surveyor, Sunbury.

Brebner & Co.	£594	18	0
Allen & Long	582	0	0
Pedrette	529	5	0
Shelbourne & Co.	481	0	0
Vinter	452	16	4
Kavanagh & Co.	438	3	3
Leggott & Speight	427	8	9
Airds, Ltd.	399	9	1
Roberts	351	6	11
Surveyor's estimate	450	0	0

TORQUAY.

For erection of a new wing, structural alterations, &c., at the Grand Hotel. Messrs. Waymouth, Johnson & Webber, architects, Torquay.

Pethick Bros.	£7,777	0	0
Vanstone & Sons	7,596	0	0
Pollard & Co.	7,500	0	0
Hampton & Co.	7,460	0	0
Spiller & Sons	7,257	0	0
Wilkins & Sons	6,438	0	0
Coles	6,388	14	9
Pittard & Son, Langport (*accepted*)	6,323	0	0

WANSTEAD.

For sewage disposal works, including percolating filters, &c., for the Urban District Council. Messrs. Willcox, Raikes & Reed, engineers, Birmingham.

Airds	£13,155	0	0
Underwood & Brother	12,848	0	0
Hill & Co.	12,800	0	0
Pedrette	12,082	0	0
Carter, Ltd.	11,728	0	0
J. & M. Patrick	11,440	0	0
Ford	11,240	0	0
Moss	10,888	0	0
Buckley	10,872	0	0
W. Moss & Sons	10,517	0	0
Jackson	10,339	0	0
Cunliffe & Sons	10,236	0	0
Bell & Sons	9,757	0	0
W. & C. French, Buckhurst Hill (*accepted*)	9,657	0	0
Engineers' estimate	9,930	0	0

WALES.

For the extension of the existing wagon shed at the Cleansing Depôt, Trade Street, Cardiff, comprising a steel roof, 60 ft. by 40 ft., covered with galvanised corrugated iron sheeting, for the Corporation. Mr. W. Harpur, City engineer, Cardiff.

Brettell & Co.	£236	0	0
Cross Bros.	227	0	0
Sampson & Sons	227	0	0
Mullings & Co.	208	15	0
Cross & Co.	199	0	0
Dawnay & Sons, Cardiff (*recommended*)	176	11	6

For erection of a residence near "The Greenhouse," Llantarnam, near Newport, for Wm. Richards, Esq. Mr. A. G. Babbidge, architect and surveyor, Pontypool. Quantities by the architect.

Herbert & Co.	£1,860	0	0
Partridge	1,800	0	0
Kirby & Westacott	1,748	0	0
Poulton & Whiting	1,700	0	0
Burgoyne & Son	1,559	0	0
Simmons & Son	1,443	0	0
Truscott	1,422	10	0
W. Branch, Abersychan (*accepted*)	1,350	0	0

WEST HAM.

For improvements to infants' cloak-room, Regent's Lane School.

A. E. Symes (*recommended*)	£159	0	0

For erection of workshops, Grange Road Special School.

C. J. Kemp (*accepted*)	£236	0	0

For extension of education offices for the Education Committee.

Webb & Co.	£6,518	0	0
Chessum & Sons	6,475	9	1
Jerram	6,277	0	0
McLaughlin & Harvey	6,275	0	0
Carter, Ltd.	6,096	0	0
Horswill	5,945	0	0
Maddison	5,585	0	0
Symes	5,520	0	0

For supply of hot-water heating apparatus at Gainsborough Road School, for the Education Committee.

Musgrave & Co.	£1,327	0	0
Purcell & Hobbs	1,248	0	0
J. & F. May	1,165	0	0
Ashwell & Nesbit	1,112	0	0
Werner, Pfleiderer & Perkins	1,050	0	0
Latham	990	12	0
Reynolds & Co.	988	5	0
G. & E. Bradley	953	0	0
Talmage	864	8	0
Watkin & Son	841	8	8
F. Davies (*accepted*)	839	0	0

For the erection of dormitory buildings at "The Grange," Harold Wood, for the Town Council.

Clemens Bros.	£2,270	18	7
Brown Bros.	2,207	0	0
Moss	2,000	0	0
Myall & Upson	1,960	0	0
Maddison	1,874	0	0
Davey & Armitage	1,857	0	0
Carter, Ltd.	1,840	0	0
Jerram	1,840	0	0
Willmott	1,787	10	0
Symes	1,777	0	0
Hammond & Son	1,706	0	0
A. H. Fryd, Southend-on-Sea (*accepted*)	1,695	0	0

It is proposed to form a company to erect swimming baths in connection with the Millbay Rinkeries at Plymouth. The cost is put at £4,000.

The Leicester Education Committee have accepted plans for the proposed school on the Hinckley Road, which will require an outlay of £18,500. For the present only the infants' department will be erected, at a cost of £6,000.

The Southampton Borough Engineer recently submitted to the Housing Committee plans for the enlargement of St. Michael's House by the addition of fifty-four cubicles, at an approximate cost of £2,440. The committee recommend that the Council approve the scheme, and make application to borrow the sum mentioned.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.
(N.B.—Local authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

CAMBRIDGESHIRE.

Willingham.—Ten cottages for the R. D. Council.

CHESHIRE.

Ellesmere Port.—School. Messrs. Dryland & Preston (of Littleborough, near Manchester), contractors (£5,927).

Macclesfield.—Technical School premises, Old Park Lane, and alterations to adjoining premises.

CORNWALL.

St. Agnes.—Bungalow Residence at Mithian.

CUMBERLAND.

Allonby.—Council School additions.

Blackwell.—Semi-detached house. Mr. Higginson, architect.

Carlisle.—Technical School.

Cummersdale.— School additions. Mr. Forster, architect to the Cumberland Education Committee.

Etterby.—Four semi-detached houses, St. Ann's Hill.

Stoneraise.—Council School: Master's House. Mr. Forster, architect.

Upperby Road.—Two semi-detached houses, York Place. Mr. Foxall, architect.

Wetheral.—New house; and additions and alterations to existing houses. Messrs. Oliver & Dodgshun, architects.

DERBYSHIRE.

Bolsover.—Twenty-six houses at Langwith.

Darley, North.—Mixed School.

Derby.—Factory for Messrs. Moore, Eady & Goode, Ltd.

Library for the Mechanics' Institution.

DEVON.

Laira.—Church of St. Mary-the-Virgin. Mr. T. Rogers Kitsell, A.R.I.B.A., architect (£5,000). Messrs. Pethick Brothers, contractors.

Weston Mill.—Church of St. James.

ESSEX.

Bulpham.—Homestead, Church Lane, for the Smallholding Co-operative Colony. Mr. J. W. Dunford (of London), architect. Messrs. W. T. & J. Cooper, contractors.

Epping.—Cottage Hospital for the district.

Leigh-on-Sea.—Mixed Infants' School. Mr. P. Brocklebank (of Southend), architect.

Woodford Bridge.—Swimming-bath for the Barnardo Boys' Village (£1,000).

HAMPSHIRE.

Gosport.—Workshop for Messrs. Camper & Nicholson.

KENT.

Ashford.—House at Goods Hill.

House at Silver Hill.

Tunbridge Wells.—Shops, Mount Pleasant.

LEICESTERSHIRE.

Leicester.—School, Hinckley Road: infants' department for 448 (£6,000). Mr. W. M. Cowdell, F.R.I.B.A., architect.

LINCOLNSHIRE.

Ashby.—Church for 500 persons. Sir Charles Nicholson, Bart, F.R.I.B.A., architect.

Barton-on-Humber.—School for 1,000 children.

Bourne.—Four houses.

Lincoln.—Carnegie Library.

St. Thomas.—Church at Skirbeck Quarter.

MIDDLESEX.

Acton.—Thirteen houses in Derwentwater and Newburgh Roads.

Houses in Summerlands Avenue and in Cowper and Pierrepoint Roads.

MONMOUTHSHIRE.

Risca.—Houses in Clyde and Commercial Streets: additions and alterations. Messrs. T. E. Richards & Kaye (of Pontypridd), architects.

NORFOLK.

Norwich.—Castle Museum alterations. Mr. A. Collins, M.I.C.E., city engineer. Messrs. T. Gill & Son, contractors (£1,464).

Council Schools for 370 seniors and 320 juniors, City Road, Lakenham.

NORTHAMPTONSHIRE.

Oundle.—Isolation Hospital. Mr. H. Trayler, architect.

Wellingborough.—Workhouse: Baths extension.

NORTHUMBERLAND.

Newcastle.—Picture Hall, corner of Clayton Street and Westgate Road.

Shop premises, corner of Heaton Park and Shields Roads.

SOMERSET.

Bath.—Hetling House; restoration. Mr. S. S. Reay, F.R.I.B.A., architect. Messrs. Hayward & Wooster, contractors.

STAFFORDSHIRE.

Leek.—Railway Station alterations.

Council School, Ashbourn Road.

Stafford.—Board of Guardians' Receiving Home for thirty children.—Mr. T. Jenkins, architect.

SURREY.

Chertsey.—Workhouse Infirmary: Nurses' Home for twelve nurses. Mr. T. Allen, architect.

Reigate.—Victoria Almshouses (two additional almshouses).

Woodbridge Hill.—Factory for Messrs. Dennis Brothers, Ltd.

SUSSEX.

Hove.—Sanatorium: ward block for twelve beds (£2,500).

WARWICKSHIRE.

Chilvers Coton.—"George Eliot" memorial stained-glass window (£250).

Coventry.—St. John's Rectory (£1,500).

Rugby.—Extensions to Baths; also Superintendent's House (£750).

WORCESTERSHIRE.

Broadway.—Sixty cottages for artisans.

Worcester.—Infants' Church School, St. George's. (Accommodation for 200.)

YORKSHIRE.

Bradford.—Conservative Club, Old Lane: additions and alterations. Mr. T. L. Dixon, architect.

Clifton.—Church Institute, Water Lane (£880).

Foston.—Iron church at Thornton (accommodation for 100 persons).

Harrogate.—St. Wilfred's Church: chancel, sanctuary, and tower (£10,000).

Hepworth.—Slaughter-house alterations for the Co-operative Society.

Hillsboro'.—Shop and office buildings, Holme Lane. Mr. J. W. Winter (of Sheffield), architect.

Hollingreave.—Four houses.

Huddersfield.—Additions to Lane Mills, Leeds Road. Mr. J. Berry, architect.

Sheffield.—Lodge Moor Infectious Hospital extensions (£1,200).

Windhill.—Church Schools: additions and alterations. Mr. T. L. Dixon (of Bradford), architect.

WALES.

Abergele.—Two semi-detached villas, St. George Road Offices, Water Street.

Clydach.—Schools.

Colwyn Bay.—Cottage in Eirias Dingle.

Four houses in Francis and Holyrood Avenues, and Nantyglyn Road.

Alterations to Maenan House, and workshop in rear.

Groesfaen.—Thirty houses for the Rhymney Iron Co., Ltd. Mr. J. Ll. Smith (of Aberdare), architect.

Pentrebach.—Fifty-two workmen's cottages (£11,250).

Porthcawl.—Women's Convalescent Home.

Rhos.—Four houses in Church and Marine Drives and Abbey Road.

Ysguborwen.—Cottage and farm buildings at the Cottage Holding.

Farm buildings, &c., at Croesdy Cottage Holding.

SCOTLAND.

Capinsay (Orkney).—Lighthouse and fog-signal station. Mr. H. M'Dougall, contractor.

Coatbridge.—Five houses and a printing workshop at the rear of property in Main Street (£450).

Edinburgh.—Eight villas, Blinkbonny Crescent.

Villa, West Barnton Terrace.

Falkirk.—Conversion of Olympia Skating Rink in Hope Street into an electric and variety theatre.

Fort William.—School, teacher's house, and offices at Blarmachfoldach. Mr. J. G. Falconer, architect. Separate contractors.

Camesky Lodge: additions and alterations.

Glasgow.—Epileptic Colony.
(See also Port Glasgow.)

Inverness.—Northern Meeting Rooms. Dr. Marshall Mackenzie, A.R.S.A., F.R.I.B.A. (of London and Aberdeen), architect (£3,000 to £4,000).

Kinglassie.—Board School.

Paisley.—Post Office extension.

Port-Glasgow.—Parish Church Halls. Mr. A. F. Duncan (of Glasgow), architect (£2,000). Messrs. M'Bride & Co., contractors.

Stonehouse.—Board School, Townmead: infants' department for fifty children.
Infant School, Greenslade: conversion into cookery, laundry and manual instruction centre.

Waterside.—Railway station.

IRELAND.

Shankill.—Carnegie Library. Mr. G. Bower (of Ballybrack), contractor (£856).

THE HEATING OF BUILDINGS.

The question of heating buildings, domestic and otherwise, is one that has engaged the active attention of architects in general for many years, and particularly in London—the "City of Fogs"—where the damaging effects of the "smoke nuisance" are so manifest. This activity is now largely being devoted to studying the question from a more scientific aspect than hitherto—*i.e.*, not merely from the standpoint of obtaining heat, and that only, but of obtaining it in its most convenient and hygienic form.

Of late years, in this country especially (where the vagaries of the climate have been so marked at all seasons of the year) a system of heating that is always instantly at the will of the user is becoming more widely known and adopted day by day.

We refer to the gas fire.

The enterprise of the manufacturers of gas heating stoves and the gas supply companies in perfecting the stoves from a hygienic as well as a practical point of view has led to this means of heating finding favour.

The work that the largest metropolitan gas company have undertaken in offering to architects the free fixing of gas fires for a trial period should induce members of the profession who have not had personal experience of modern gas heating to take this opportunity to study the subject more closely, and should lead to their advising the still wider adoption of this excellent system of heating, with great advantage to the general public and the ultimate preservation of our buildings.

COMPETITION NEWS.

The Special Infirmary Site Committee of the Manchester Corporation met on Monday at the Town Hall. The report of Mr. Reginald Blomfield, A.R.A., on the subject of the final selection from the ten selected sets of plans for a new art gallery and reference library on the site was received. After it has been printed a copy of it will be sent to each member of the Council. The ten sets of plans are by the architects who were selected out of the large number that submitted competitive designs in the first instance. When the selection was made the authors of these plans were asked to adapt their plans to meet the particular requirements of the committee. Having complied with the committee's request their designs were submitted to Mr. Blomfield, who is joined with the city architect as adviser.

We regret to announce the death of Mr. Samuel Putney, which took place on the 19th inst. at his residence, 2 Park Avenue, Willesden Green, N.W., after a short illness. Mr. Putney was born in London on November 3, 1824, and was the founder of the firm of Samuel Putney, Ltd., of Harrow Road, Paddington Green, W., with several branches in London. The firm is well-known and respected in the timber trades, but better known to architects and builders in connection with the system of wood flooring described as Putney's Pavodilos. Mr. Samuel Putney retired from active work in connection with the business in 1903, and since that time his sons, who were associated with him in the management, have conducted it. The firm's customers include their late Majesties Queen Victoria and King Edward VII., his Grace the late Duke of Westminster, the Right Hon. the Earl of Jersey, and the Right Hon. Joseph Chamberlain, M.P., &c. Their floorings and wainscottings have been largely adopted for use in hospitals, schools, libraries, and other public buildings.

THE EVOLUTION OF THE DWELLING-HOUSE AND SOME REFLECTIONS THEREON.*

Necessity has been said to be the mother of invention, and certainly necessity for protection from the inclemency of the seasons was the mother of architecture and the science of building.

The ages that have elapsed, and the distance which separates us from the nations amongst whom the art of building was first practised, deprive us of the means of examining the degrees of difference resulting from climate, productions of the soil, the precise spots upon which the earliest societies of men were fixed, with their origin, number, mode of life, and social institutions; all of which would influence them in the selection of one form in preference to another.

The original classes into which mankind was divided were, we may safely assume, those of hunters, shepherds, and of those occupied in agriculture; and the buildings, or dwellings, which each would require for protection, were characterised by their several occupations.

The hunter and fisher, finding all they required in the clefts and caverns of rocks, and the indolence which those states of life induced, made them indifferent to greater comfort than these naturally formed dwellings gave. That such tribes thus lived there is ample testimony from Eastern travellers and explorers (and for Biblical confirmation see Jeremiah, chap. 49, v. 16).

To the shepherd, the inhabitant of the plains wandering from place to place, as the needs of pasture for his flocks compelled him, another type of dwelling was necessary, one which he could remove with him in his wanderings: this was the tent, still the standard dwelling of all nomads.

For the agriculturist portion of the race a fixed abode was necessary, not only for the personal comfort of the husbandman but for the preserving of the fruits of the earth from one season to another; solidity was required, hence the hut, assumed generally by authorities on architecture to be the type of Grecian architecture.

The earliest dwellings constructed after the dispersion of mankind from the plains of Sennaar were proportioned to the means which the spot afforded, and to the nature of the climate to which they were to be adapted. Reeds, canes, the branches, bark, and the leaves of trees, clay, and such material would be first used. The first houses of the Egyptians and the people of Palestine were of reeds and canes interwoven. At the present time the same materials serve to form the houses of the Peruvians. According to Pliny, the first houses of the Greeks were of clay, for it was a considerable time before that nation became acquainted with the process of hardening it into bricks. The Abyssinians still build with clay and reeds. Wood, however, offers such facilities of construction, that still, as of old, its use prevails in those places where it abounds, as in the wooden dwellings in the forests of the northern parts of Germany, Poland, and Russia.

The construction of the early dwellings of mankind required little skill and knowledge; a very limited number of tools were at his disposal. The method of felling timber, still used by uncivilised people, *i.e.* by fire, would serve at first; following this method would come the shaping of hard and infrangible stones into cutting tools; these, as metals became known, would give way to tools made of those materials. The saw, nails, hammer, and other instruments of carpentry were unknown. The industry and perseverance of man overcame in the end the difficulties of construction, for wood, the earliest material, was supplanted by brick, stone, marble, and like substances; and in the course of ages edifices were erected of unparalleled magnificence and solidity. It is most probable that bricks were in use long before stone was employed in buildings; after being moulded, they were merely subjected to the heat of the sun's rays to acquire the necessary hardness. Of such materials was the Tower of Babel constructed.

The introduction of the use of bricks to any great extent in domestic buildings in England was probably between the years 1300 and 1450, although instances of their use in ecclesiastical buildings and chapels were more common. An old writer, Leyland, says:—

"Michael de la Pole, merchant of Hull, came into such favour with King Richard II. that he got many privileges for the towne. And in hys tyme the towne was wonderfully augmented yn building, and was enclosyd with ditches, and the waul begun, and in continuance, endid, and made all of brike, as most part of the houses at that time was. In the waul four principal gates of brike."

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* **A Paper read at the annual conference (26th) of the Sanitary Inspectors' Association at Great Yarmouth by Mr. H. Johnson, chairman of General Council.**

After enumerating twenty-five towers "M. de la Pole," we find from Leyland,

"Builded a goodlie house of brike, against the west end of St. Mary's Churche, lyke a palace, with goodly orcharde and garden at large, also three houses besides, every one of which hath a tower of brike."

This was the first instance of so large an application of brick in England.

The period at which wrought stone was brought into use for building purposes is unknown; as is that at which cement of any kind was first employed as the medium for uniting masonry. But that both were inventions of that race of land cultivators, already mentioned, there can be little doubt, to whom solid and durable edifices were necessary when they had fixed upon a spot for the settlements of themselves and families.

But no country could have been compelled earlier to adopt it as a building material than Egypt, because the climate does not favour the growth of timber; hence stone, marble, granite were forced into use.

The time at my disposal will not permit of my dealing but lightly with the methods of building dwellings in other lands; but in all Southern European countries the stages of the different types of material used appear to have been in order —*i.e.* the flexible, the plastic, the moulded, and the solid.

Two types of the elementary houses of the Pelasgi are described by Duc in his "Habitations of Men." The habitations consisted of a low circular wall formed of large stones, on which was erected a cone of branches of trees, covered with reeds or twigs; the fire was made in the middle, and the smoke issued through the top of the cone. Another type, rectangular in shape, was built by heaping up stones to form the walls; the door was formed by large stones tilted towards each other, with another stone across them, forming a lintel, the roof being made by means of tree poles laid side by side and covered with turf, leaves, and grass. Neither type gave any protection against dampness or soil emanations. Some cottages in rural England to-day are very little in advance of these early Pelasgi dwellings—very pretty possibly, but very insanitary—the healthy outdoor life of the occupants alone counteracting the evils of the occupancy.

At the time of the invasion of Britain by Julius Cæsar, in the year 55 B.C., the inhabitants dwelt in houses resembling those of Gaul; and in Kent and other southern parts of the country their houses were more substantial and convenient than those in the north. Caves or earth dwellings appear to have been their original shelter, which had been preceded by the wicker enclosure, the sides of which were encrusted with clay. These were thatched with straw.

The wooden houses of the Gauls and Britons were circular, with high, tapering roofs, at the summit of which there was an opening for the admission of light and the emission of smoke. These, where the buildings were on a grander scale, were placed upon a foundation of stone, and much resembled those of the Pelasgi before mentioned.

In Great Britain, as also in many parts of Europe, the evidence is convincing that the earliest form of dwelling —worthy to bear the name of house—was round. In this country charcoal burners, whose occupation is an ancient one, build and occupy round huts at the present time. They are composed of a number of thin poles laid together in the form of a cone, the feet are placed about a foot apart, and then interlaced with brushwood and long grasses, and covered with turfs.

(To be continued.)

St. Wilfred's Church, Harrogate, is shortly to be extended by the erection of chancel, sanctuary and tower.

It is proposed to erect a pavilion at the shore end of Worthing pier.

The Sunderland Town Council have agreed, after a discussion protracted over a considerable period, to the purchase from the owners of the Ford estate of 12 acres 136 square yards of land as a site for a day training college, at a cost of £7,818.

Alderdale Hall and estate, which is within half a mile of Clayton Bridge station, near Manchester, has been sold to the Alderdale Estate Co., Ltd. It is proposed to convert the estate into a garden city, with houses of the modern semi-detached type, and with gardens both back and front. It is expected that the building work will commence very shortly.

POLISH HOUSES.

The following information in the *Board of Trade Journal* is from the report by H.M. Consul at Warsaw (Mr. C. Clive Bayley) on the trade of Poland and Grodno in 1910, which will shortly be issued:—

The houses built for the occupation of the richer classes are all on the flat system, while those for the poorer classes are similar in design to the British model dwellings, only perhaps a little more ornate. All buildings are supervised by a large committee of engineers and architects appointed by the municipality, and generally the construction is strong and good.

Fireproof buildings are the fashion, and all fireproof materials are in demand. Reinforced concrete floors, staircases and partitions are being slowly adopted, but at present hollow bricks are principally used for floors and partitions.

The external finish of the houses is much less ornate than formerly, but the internal fittings—door handles, hinges, locks, window fittings, &c.—are much superior to those previously used, and consequently should attract the attention of the British manufacturer.

THE FUTURE AUSTRALIAN CAPITAL.

Although the Australian Federal capital territory was only transferred to the National Government on January 1 last, and the city site has not even got a name yet, enormous progress has (writes the Melbourne correspondent of the *Manchester Guardian*) been made. Within the last financial year over £113,000 has been spent on the territory by the Labour Ministry. A military college has been established on the basis of an old homestead, dozens of miles of new roads have been made, and over one hundred remade and cleared, dozens of cottages have been erected to house workmen, in addition to a big "bachelors' barracks," rivers have been bridged, a National Observatory has been initiated, a central electric power station has been erected, and designs for great water supply, sewage, drainage, and brick-making works have been approved and tenders prepared. At Jervis Bay, the future Federal port, the national area has been extended by 5,100 acres, and the sites for docks and shipbuilding yards have been reported on. Already 500 Government workmen are engaged in different parts of the territory, and by the end of next year the employees will number thousands.

This advance army of workers awaits the award in the world competition for the laying out of the national city—a capital before whose glories, it is hoped, even Washington will take second place. Certainly nothing but a succession of severe droughts or an overwhelming "national economy" campaign can now stay the progress of one of the most important experiments in town-planning the world has ever seen.

TRADE NOTES.

The Isolation Hospital, Acton, is being supplied with Shorland's double-fronted patent Manchester stoves with descending smoke-flues by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

The Brilliant Sign Co., Ltd., have secured an order for their Brilliant letters from Messrs. Frosts, Ltd., of Liverpool. The sign will measure 255 feet by 2 feet 6 inches.

The Corporation of Ryde are about to make application for a loan of £8,500 for the purpose of increasing the water supply.

The Athenæum and Choral Societies at Southend-on-Sea are much handicapped owing to the lack of a suitable hall. A winter garden at this popular watering-place should be a paying proposition.

Mr. T. G. Abercrombie, architect, Paisley, is preparing plans for a large church and suite of halls to be erected on the site of the Abercorn foundry at North Croft, Paisley, by a benefactor.

The borough engineer of St. Helens has been instructed to prepare the plans necessary for an extension of the present cemetery, for which the Corporation are empowered to expend £3,400.

Mr. Jowett Kendall, architect, of the firm of Messrs. Jowett Kendall & Co., of Pudsey, died suddenly on the 24th inst. at Morecambe, at the age of sixty. Mr. Kendall formerly carried on business in Leeds as a member of the firm of Kendall & Bates.

VARIETIES.

A NEW school to accommodate 1,000 children is to be shortly erected at the Hampstead Garden Suburb.

THE London County Council are to apply for Parliamentary powers to enable them to purchase sites for seventeen new schools.

COPSEWOOD GRANGE, Warwickshire, the late Sir Richard Moon's estate, will shortly be cut up for building purposes. Some 2,000 houses are likely to be built upon it.

A WALLED village of the late Stone Age has been discovered a few miles from Otley, Yorkshire. The remains include those of a smelting furnace, crematorium, and place of worship.

THE Barry Education Authority are recommended by a committee to dispense with the services of their architect and to entrust in future all architectural work to the surveyor's department.

THE *Diario Official* of Brazil publishes a decree earmarking, in favour of the Ministry of Justice and Home Affairs, an extraordinary credit of about £158,000 for the purpose of completing the building of police cavalry barracks in the Avenida Salvador de Sá, Rio de Janeiro.

MESSRS. GEORGE MORGAN & SON, architects, Carmarthen, have been selected to prepare designs for a proposed extension of the West Wales Asylum at Carmarthen. Forty acres of ground contiguous to the present building have just been purchased in connection with the scheme.

THE Birmingham Board of Guardians have empowered the Finance Committee to arrange for a loan of £1,500 to cover the erection of pathological, bacteriological, and X-ray departments, and extensions to the accommodation for nurses at the infectious block.

SEVERAL new shops are about to be erected at Tunbridge Wells. The South-Eastern and Chatham Railway Company have been carrying out extensive alterations and improvements at the station.

THE Holyhead Town Council last week considered a scheme prepared by the local surveyor for drainage works estimated to cost £30,000. It was agreed to carry out the proposals piecemeal as necessity arose.

THE Bridlington Town Council have decided to commence at once the construction of a new shelter and public lavatories on the South Marine Drive. It is hoped to complete the work before the commencement of next season. They also propose to borrow £4,400 for further street improvements in St. John Street in order to make a wide and commanding thoroughfare between old and new Bridlington.

THE *Electrical Engineer* signalises its twenty-ninth year of issue by a reduction in price to 2*d.* weekly and by a simultaneous increase in the number of its pages. The current number, which is abundantly illustrated, describes the leading features of the great electrical exhibition at Olympia, and among other features describes and illustrates Dr. Nikola Tesla's new turbine, which, it is believed, is destined to revolutionise all existing methods of fluid propulsion.

THE Glasgow and West of Scotland Slaters' Association has received a message from the United Slaters' and Tilers' Society of Victoria, in which they state:—"It has been reported to our Society by tradesmen coming from the British Isles that it is advertised in the papers offering constant work for slaters and tilers at 10*s.* per day. On behalf of the slaters and tilers of Victoria we beg to say that this is impossible, as the members here do not average 30*s.* per week, taking the year round, owing to wet weather, slackness of trade, and the large amount of galvanised iron used for roofs."

THE Local Government Board have approved of the scheme of the Doncaster Corporation to erect sixty workmen's dwellings at Warmsworth, fifty at Carr House and Elmfield, and a certain number not yet determined in Wheatley Lane, in place of those demolished in the building of the Marshgate Bridge. The first site submitted was one in Marshgate, near the river, and near the sites of the houses demolished, but there was a good deal of opposition to the scheme, and finally the Board refused to sanction it. The scheme now sanctioned will cost between £36,000 and £40,000, and application will be made to the Board for powers to borrow the money.

THE Local Government Board have approved of a scheme of main sewerage and sewage disposal extensions for Consett. The works comprise the laying of two main additional outfall sewers composed of iron and earthenware pipes, also the construction of sedimentation tanks at the disposal works, and the laying out of an increased area of land for sewage irrigation as an extension to the present sewage farm. The Council have instructed the engineers, Messrs. D. Balfour & Son, of London and Newcastle-on-Tyne, to obtain tenders for the carrying out of the work.

THE members of the Manchester, Salford and District Building Trades Employers' Association met on Tuesday to discuss the demands made on behalf of the labourers for increased wages and revised working hours. The meeting was private, but the opinion was expressed that the difficulties to be overcome are not serious, and that the reply to the Labourers' Union, which has to be made by the beginning of next week, will be satisfactory.

MR. A. G. DRURY, M.Inst.C.E., held an inquiry at Sutton-Sea, Lincs., on Tuesday, into the application by the Spilsby Rural District Council to the Local Government Board for sanction to borrow £7,200 for purposes of sewerage and sewage disposal at Sutton-on-Sea. For the Rural District Council it was stated that all past schemes had broken down, and the new scheme would involve a cost of £7,712. Mr. H. Walker, of Nottingham, the engineer, explained the scheme.

THE project for erecting memorials to the late King Edward VII. in Sheffield was advanced a stage on Tuesday, when a meeting of the sub-committee in connection with the proposed Crippled Children's Home was held at the Town Hall. It was reported that the amount received or promised for the erection of the statue and the provision of the Crippled Children's Home was £16,764, and that other amounts were expected, making a total of upwards of £19,250. A small sub-committee was appointed to report as to the accommodation in the proposed home, as to the cost of the building, and also as to its future maintenance.

THE new building by-laws for the city of Sheffield, which have been under discussion for the past three years, have at last reached a final form. The special committee which has had charge of them held its last meeting on the 26th inst., when it was reported that the by-laws had been provisionally approved by the Local Government Board, and it was decided to recommend them to the City Council for formal adoption at the next meeting. The committee have had before them objections and representations from the Sheffield Society of Architects and Surveyors, the Chamber of Commerce, the Sheffield Engineering Trades Federation, the Master Builders' Association, and other bodies. The views put forward have been met as far as possible. The committee also decided upon amendments of the regulations as to architectural projections, which will be submitted to the Council for approval along with the by-laws.

A COUNCIL meeting of the London Master Builders' Association was held at Koh-i-Noor House, Kingsway, W.C., on Thursday, September 21, with the President (Mr. G. Bird Godson) in the chair. The minutes of the last ordinary Council meeting, together with those of the special Council meeting held on the 23rd ult., of the special Committee meeting, the report of the Conciliation Board meeting, and the report of the Finance Committee were read and confirmed. Several matters from the National Federation were considered, and the question of national insurance and unemployment was discussed. Attention was drawn to instances of intimidation during the late strike and to the obvious evils attending peaceful picketing. The following new members were elected and nominated:—Elected: Ordinary member: Messrs. W. Moss & Sons, Ltd. Associate members: Messrs. Smeed, Dean & Co., Ltd., Messrs. Lawford & Sons, Ltd. Nominated: Associate members: Messrs. The Metropolitan Asphalte Co., Messrs. Loosley & Son, Messrs. F. A. Clark & Sons.

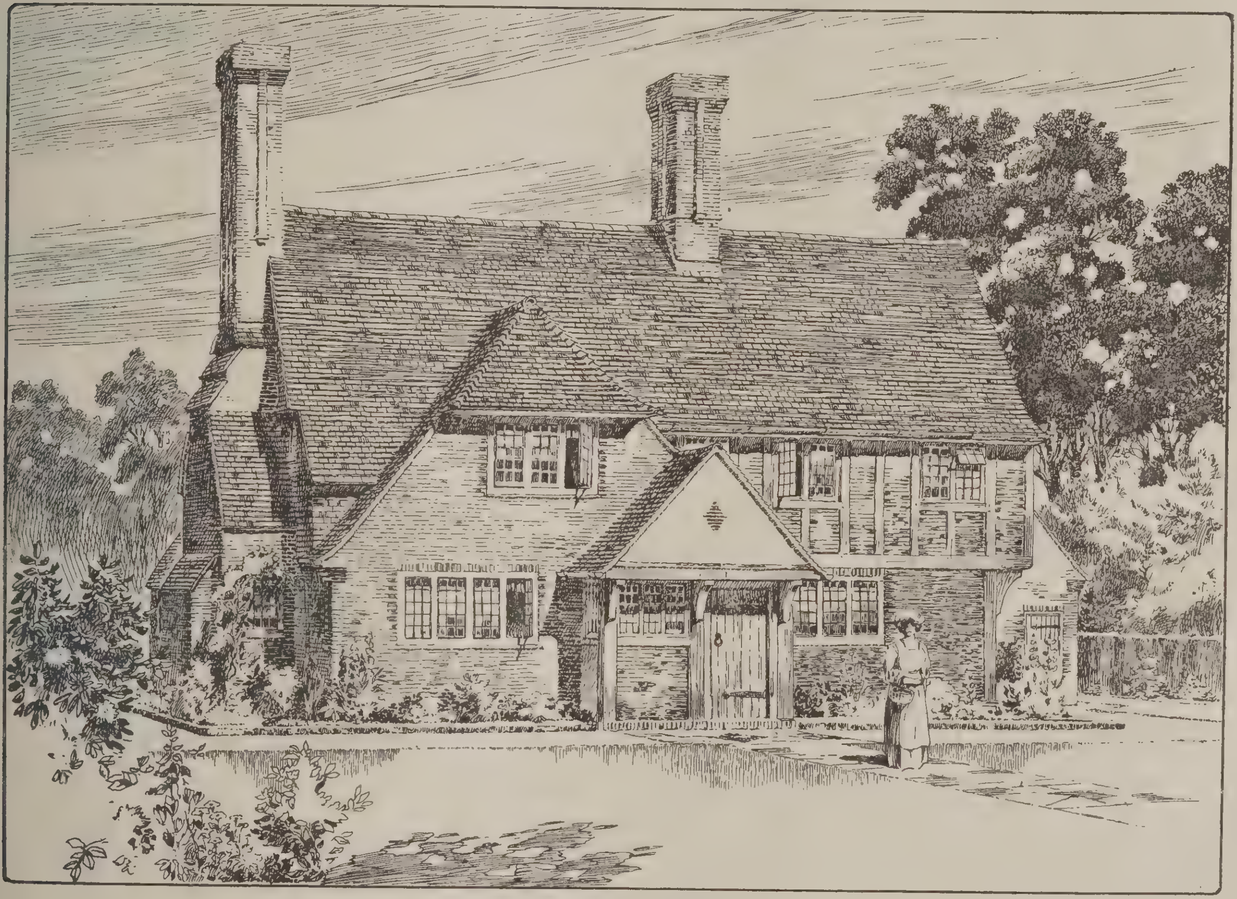
THE Rhymney Valley Joint Sewerage Board last week discussed an extensive sewerage scheme. The engineers, Messrs. Wilcox & Raikes & Reed & John S. Alford, submitted their scheme for a sea outfall. The report stated that a careful survey had been made of the route of a trunk sewer from Tyn-y-Coed to the sea, and they had assumed for the purpose of calculation that the population of the Rhymney Valley would ultimately be 180,000. Reference was made to an estimate by Messrs. Willcox & Raikes & Reed for a scheme proposed by the Gelligaer Council, with disposal works at Tyn-y-Coed, and it was stated that the sum allowed for the construction of a trunk sewer to the north of Tyn-y-Coed was £50,000. This amount had been included in the estimate for the sea outfall scheme. The engineers had prepared two alternate estimates, amounting to £222,000 and £206,000. After discussion it was decided to adopt a sea outfall scheme, and also to instruct the engineers to make the necessary preparations for submitting the entire scheme to Parliament in the next Session.

WEEK-END COTTAGES, BUNGALOWS, AND OTHER SMALL HOUSES.

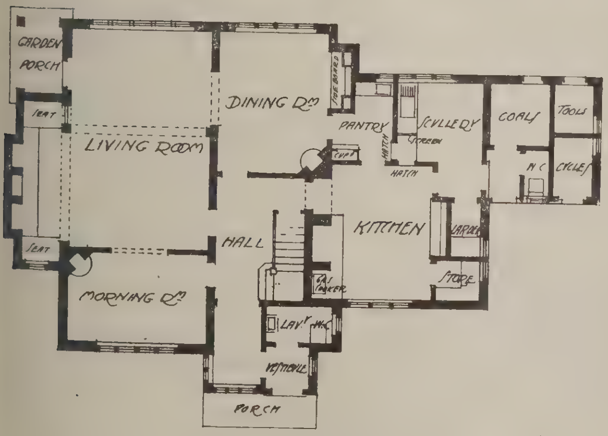
In this Supplement we publish a number of original and unexecuted sketch designs by architects of ability, principally as a guide to those who desire to possess a small sized house which shall form a home in the country for holiday or week-end residence. The designs have been made by different architects and show a variety of treatment, both in arrangement of plan and in elevation. The amounts which are quoted as approximate prices are reliable in average cases, but the cost of the same house will necessarily vary in different localities according to local circumstances. The architects who have made these designs are, however, sufficiently skilful and businesslike to be able to give their employers full value for money spent.

The Editor of *The Architect* will be pleased to introduce the authors of the designs published to any one who may wish to have a house built in accordance with the plans.

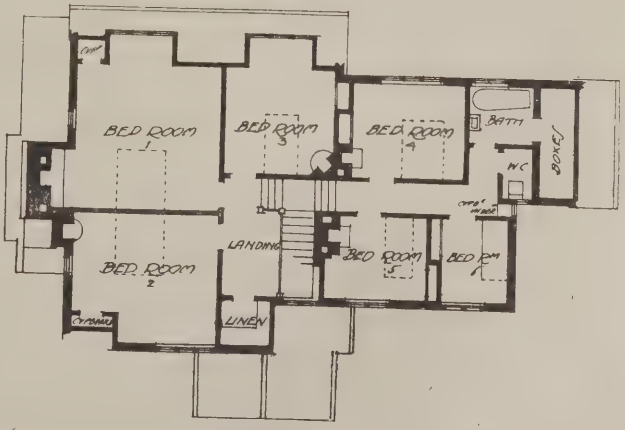
DESIGN NO. 1.



THE ENTRANCE FRONT.



GROUND FLOOR PLAN.

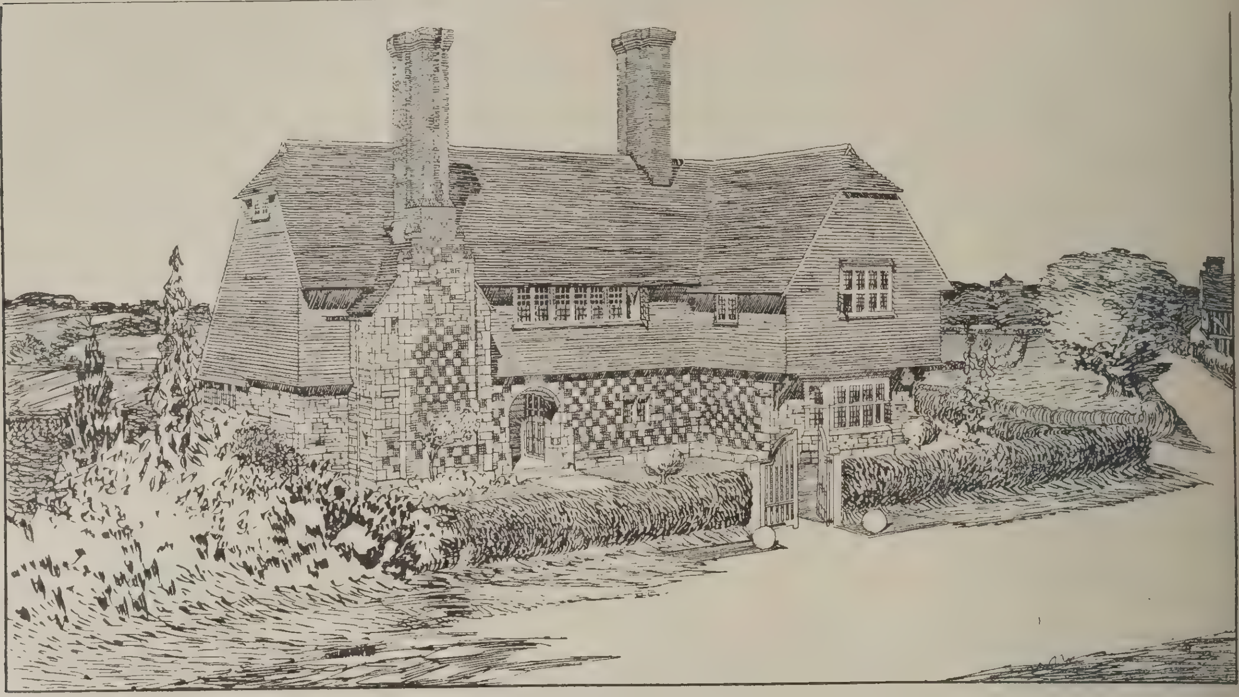


FIRST FLOOR PLAN.

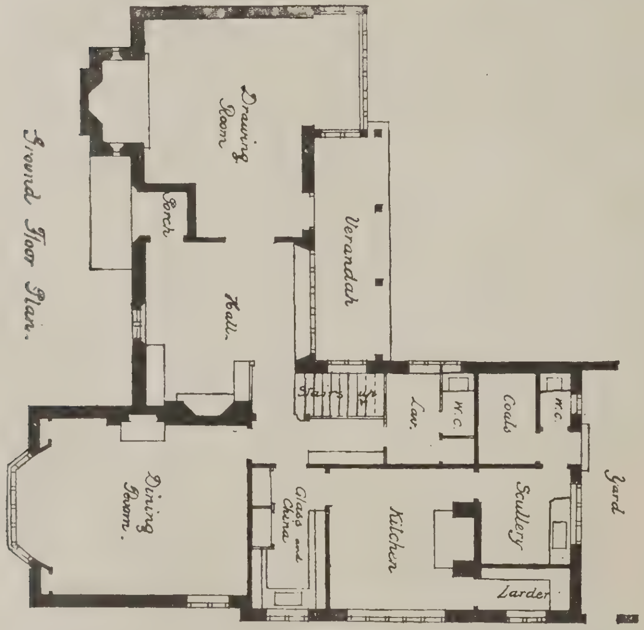
This design is particularly well arranged for a week-end or holiday residence. It possesses what should always, in our opinion, be the chief feature of such a home, a large living room, a convenient and moderate-sized dining-room and a small room which can be kept quiet and used as a morning room, boudoir or study. There are six bedrooms and the house is most economically planned.

The exterior is intended to have brick walls and tile roofs, whilst relief is given by the introduction of half timber walls and a plastered gable over the front door. The design is both picturesque and refined and is redolent of the feeling of old English homes in the southern counties of England. The cost of such a house would be about £1800.

DESIGN NO. 2.



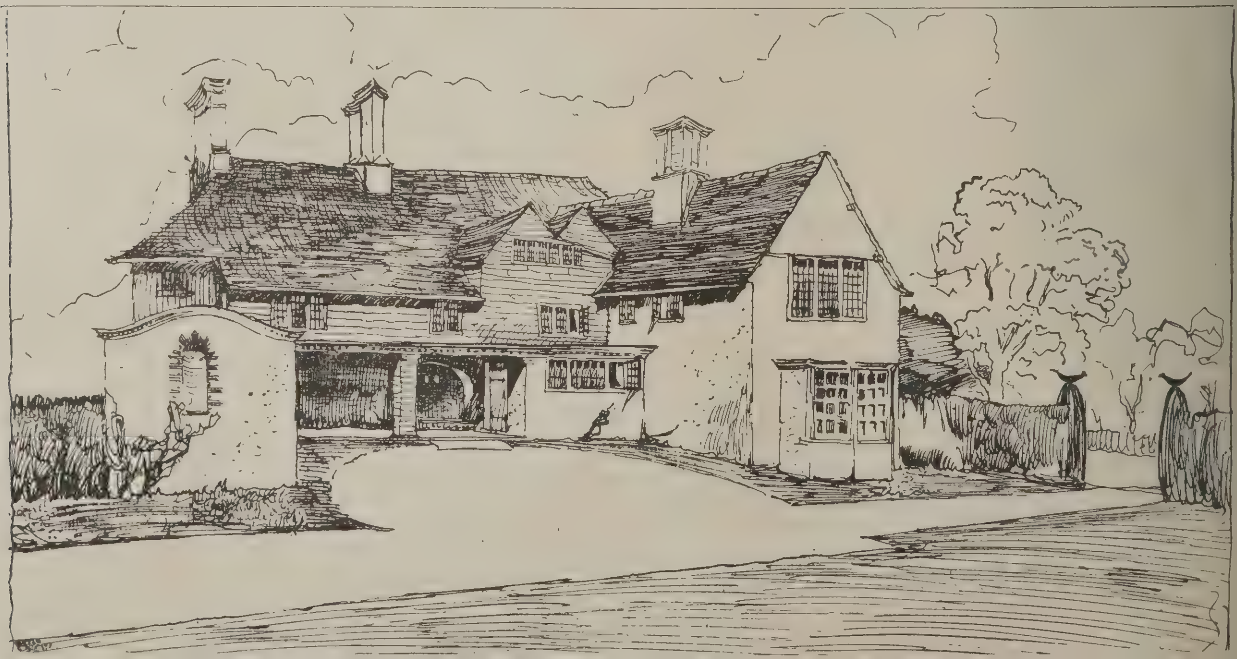
THE ENTRANCE FRONT.



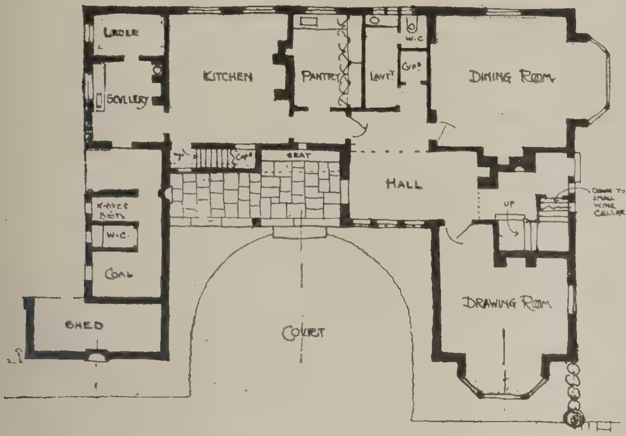
Here we have a house of a different type. The chief feature of the plan is the provision of a large hall, useful for a sitting-room, and a good dining-room and drawing-room. The latter would be a particularly comfortable room in the winter evenings, whilst the verandah opening from it would be very pleasant for summer use.

The house is intended to be built with stone walls, chequered with knapped flints, on the ground floor, and tile hanging to the upper storey, with tile roofs and red brick chimney-stacks. The design has much of the feeling of the old Sussex manor-house. This house could be built in the South of England for about £1800.

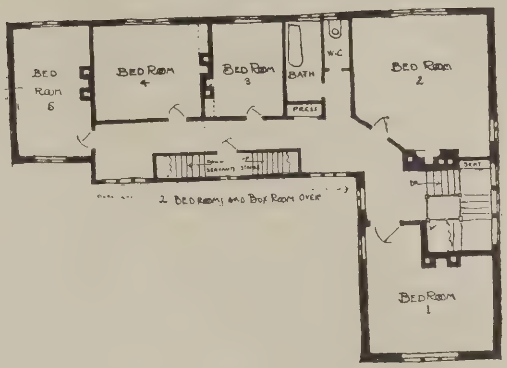
DESIGN NO. 3.



DESIGN NO. 3—*continued.*



GROUND FLOOR PLAN

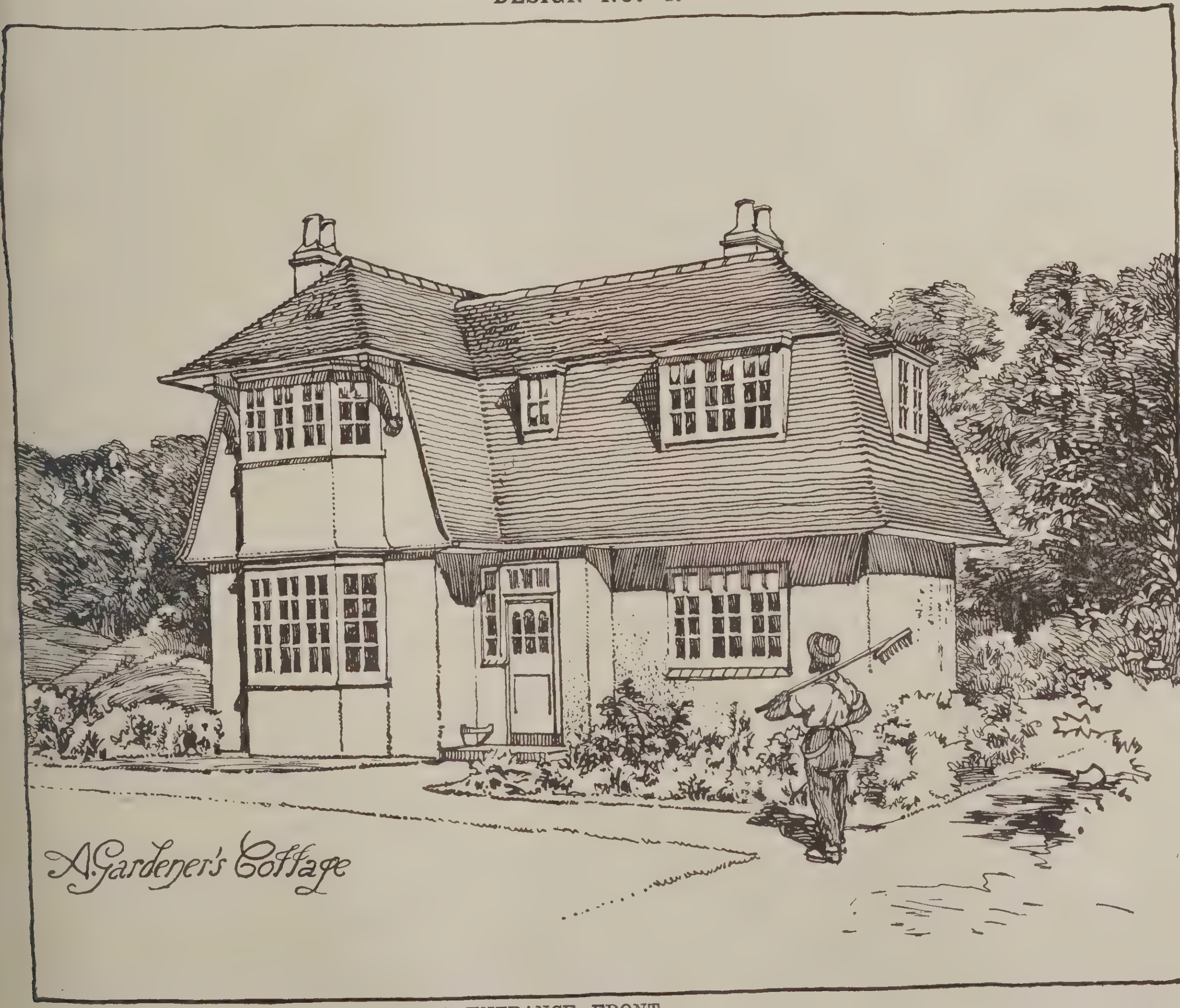


FIRST FLOOR PLAN.

This house is planned for a situation in which the entrance is supposed to be on the west side, so that the kitchen, which faces east, and the kitchen offices are at the north end of the house and reception-rooms at the south, the dining room at the south-east corner and the drawing-room at the south-west. All the bedrooms, of which there are seven, have east or west aspect, thus every living room in the house receives sunshine at some part of the day. The entrance to the house is through a large covered verandah or loggia, leading to a good-sized hall.

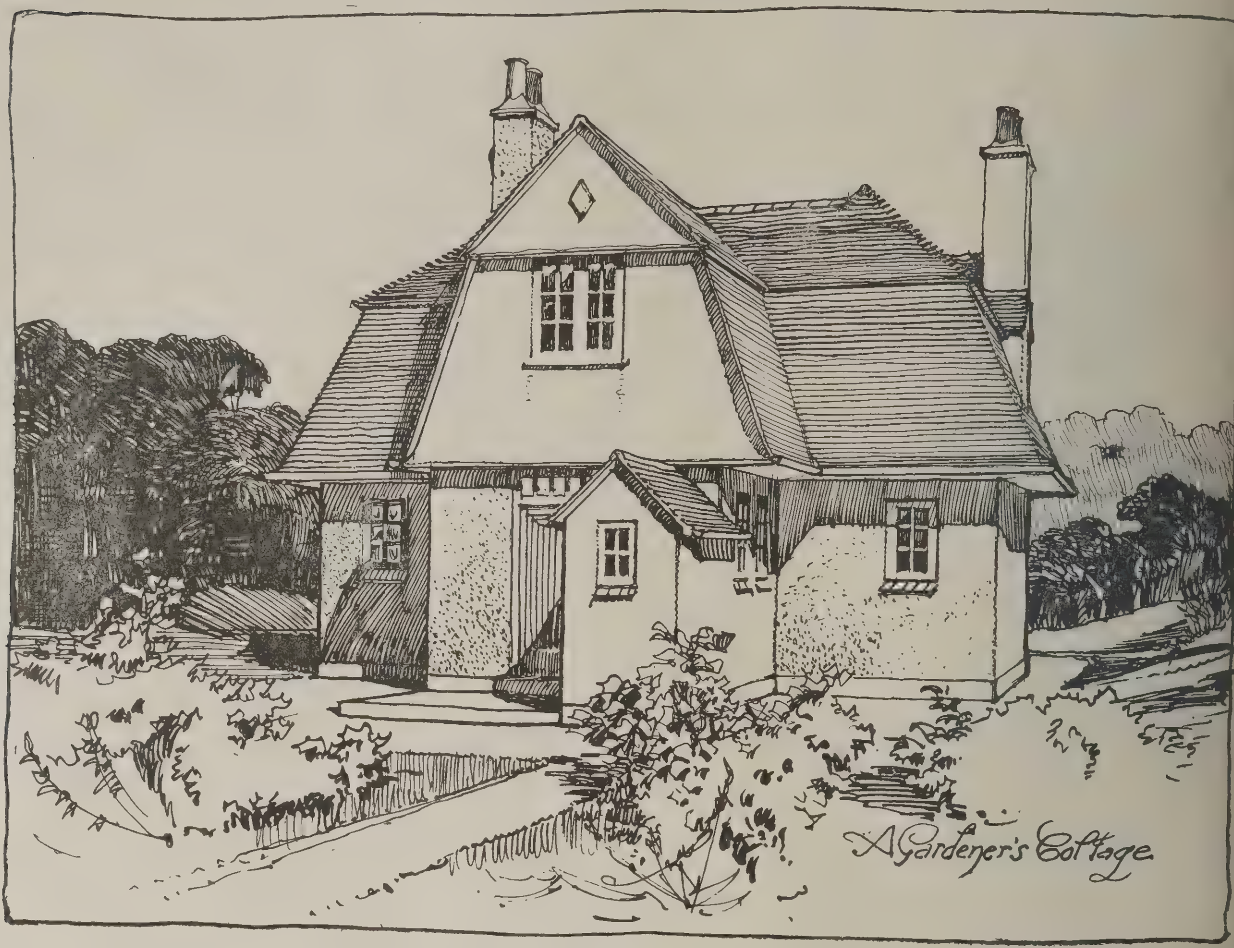
The picturesquely grouped exterior is intended to have the walls covered with rough-cast, except the front wall above the flat roof over the hall and porch, which would be covered with sawn weather-boarding, treated with Solignum. The beams supporting the bearers to flat over porch and the bearers themselves would be in sawn fir treated with Solignum. The chimney-stacks would be faced and enriched with red sand-faced bricks. The roofs generally would be covered with red, hand-made sand-faced plain tiles. The windows on ground floor would be filled in with wood casements in small lights with solid frames, those on first floor having metal casements and leaded glazing. The finishings internally would generally be of simple character; the principal stairs, the panelling and finishings in hall, and the flooring in hall, staircase, dining-room, and drawing-room would be in oak, if possible. The probable cost would be a little less than £2000.

DESIGN NO. 4.

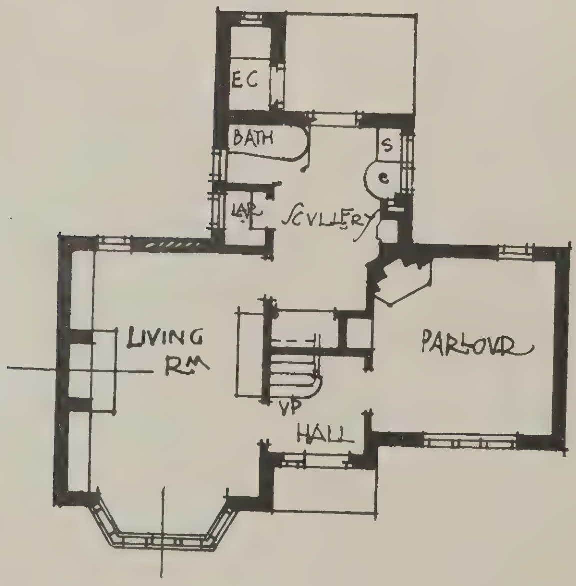


THE ENTRANCE FRONT.

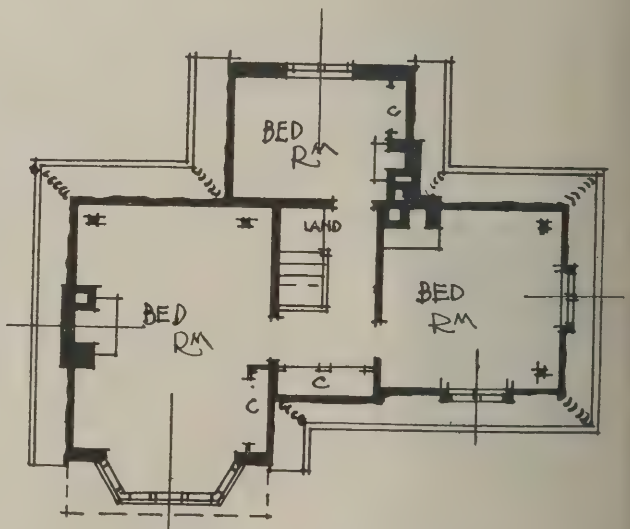
DESIGN NO. 4—*continued.*


A Gardener's Cottage.

THE GARDEN FRONT.



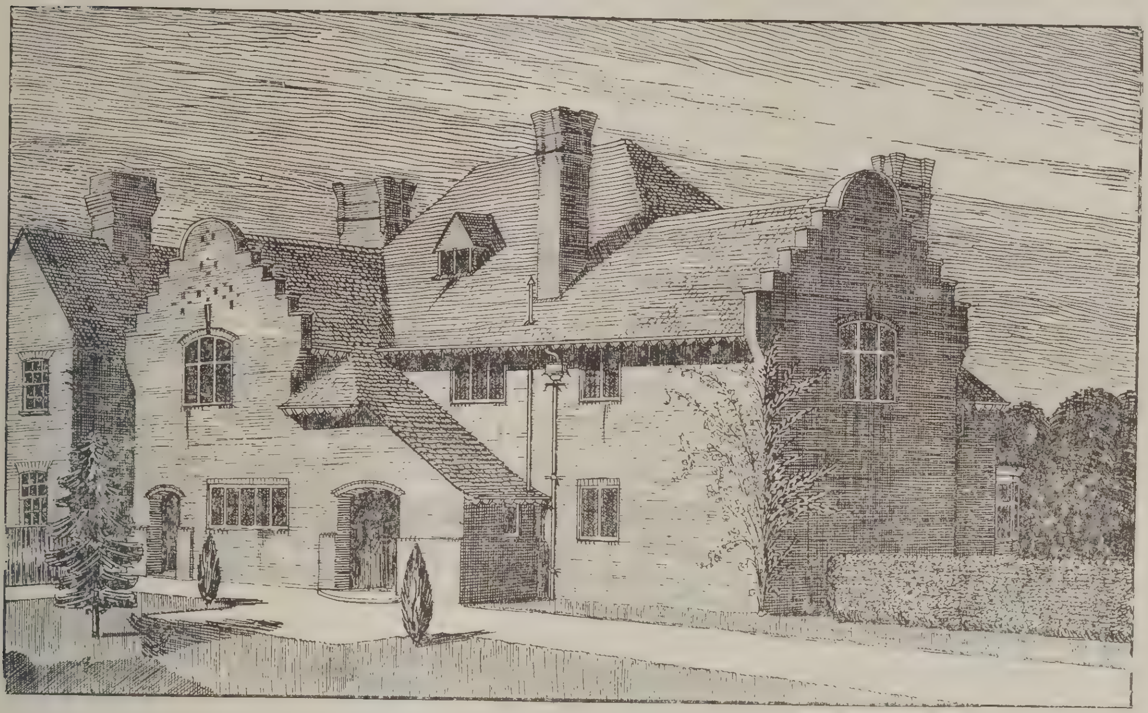
GROUND FLOOR PLAN.



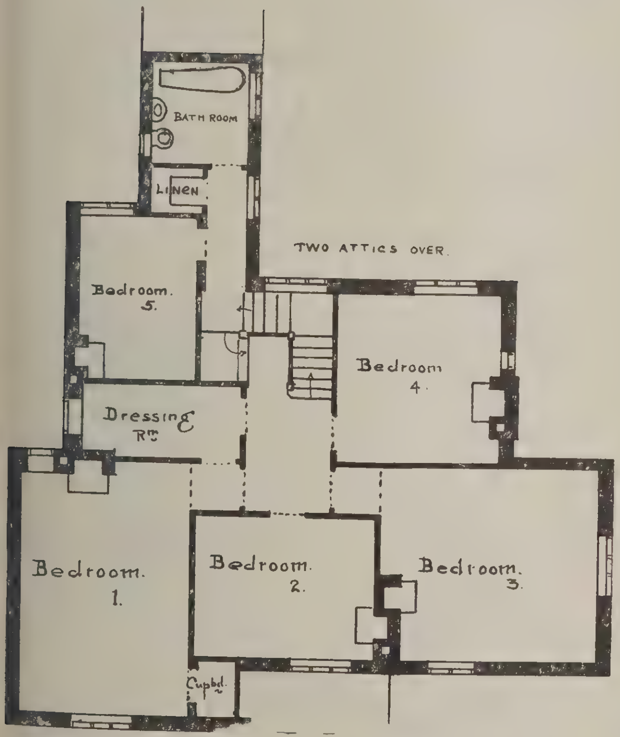
FIRST FLOOR PLAN.

This little dwelling, though designed as a gardener's cottage, would be very suitable for a small and inexpensive week-end residence. The roof would be covered with pantiles or ordinary red roofing tiles and the chimney-pots and plinth tarred black. The drainage would be to a cesspool, and rainwater collected to tank would be pumped up over sink with extension supply to bath. Under ordinary circumstances, it is estimated that this little cot could be erected for about £250, the walls being built with bricks rough-cast in grey cement up to the level of eaves, and above that level where showing in gables to be in smooth white cement.

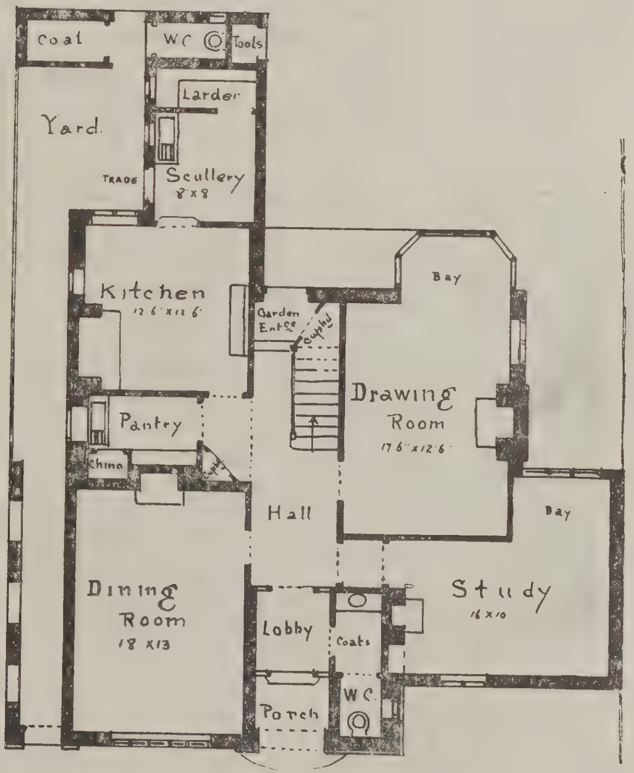
DESIGN NO. 5.



THE ENTRANCE FRONT.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

This design is an example of economical building in plain brick, covered with a tile roof. The windows are wood-framed, divided by leaded lights. The crow-stepped gables give a Flemish air to the design, which is often reflected in old houses in East Anglia and in Kent. The house contains accommodation as shown on the plans suitable for a family of six persons and two servants, and could be built on quite a narrow plot of land. The cost of the house, including all fittings shown, is approximately £1250.

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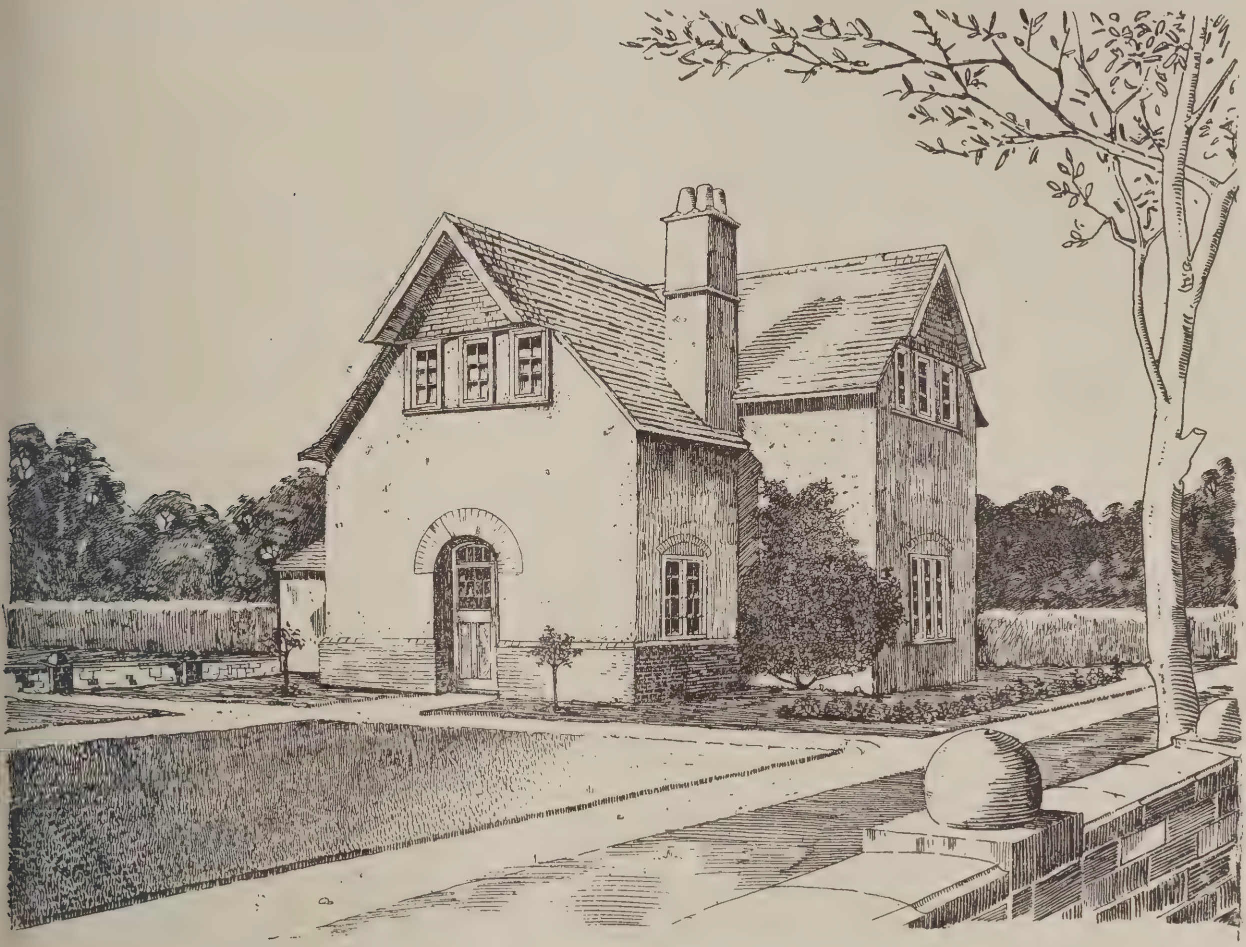

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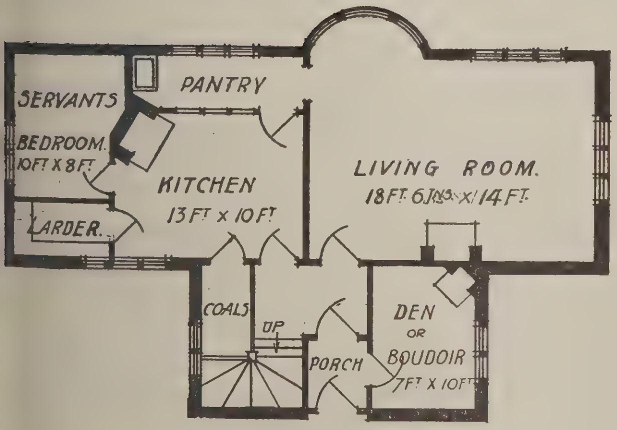
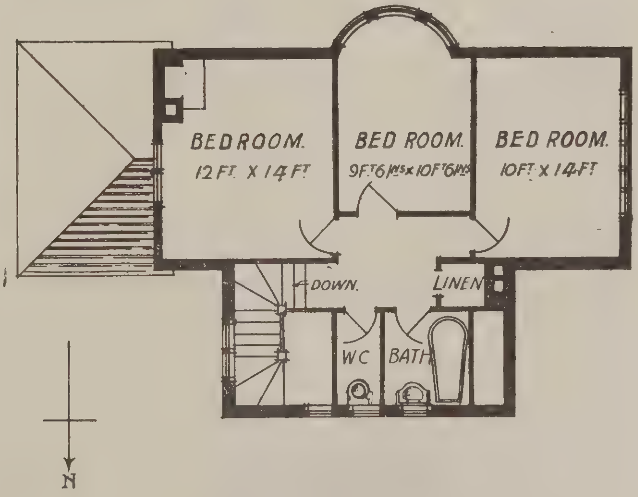


GROUND FLOOR PLAN.



FIRST FLOOR PLAN.

This simple little house is intended for a week-end cottage or one servant residence. It has a large living-room for he size of the house and a small room where one can be quiet. Four bedrooms are provided and all the necessary offices.

The walls would be built of brick, faced with red to the plinth and arches, and whitewashed above. The roof would e covered with tiles, and the small gables above the windows would have vertical weather-boarding stained with Solig- um. The cost would be about £450.

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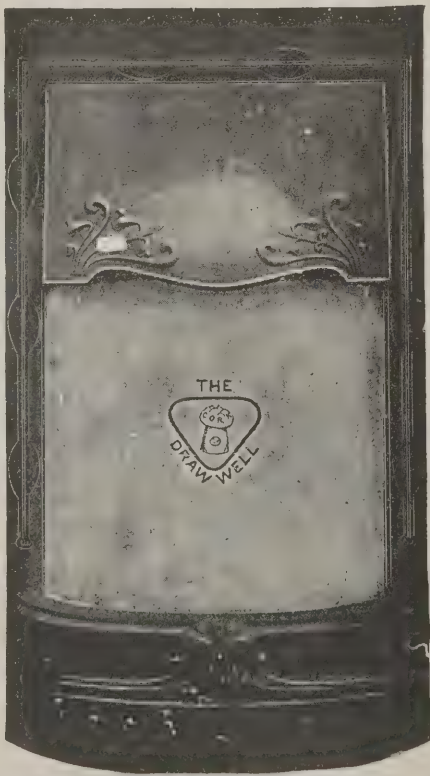

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FRIDAY, OCTOBER 6, 1911.

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⁂ Entered in the United States of America as second-class matter.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

⁂ As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Bolton.—The Lancashire and Cheshire Miners' Federation invite architects in practice on their own account within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1s. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton.

Bristol.—Oct. 31.—The Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

Evesham.—Oct. 7.—The Rural District Council invite designs, with estimates of cost, for laying out a building site at Broadway and the erection thereon of 30 cottages, under the Housing and Town Planning Act, 1909. The architect whose design is accepted will be appointed to carry out the work at an inclusive fee of 5 per cent. Deposit £1 1s. Mr. E. H. Wadams, Clerk, Union Offices, Evesham.

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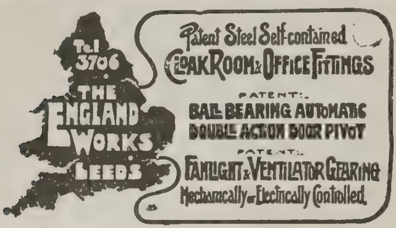
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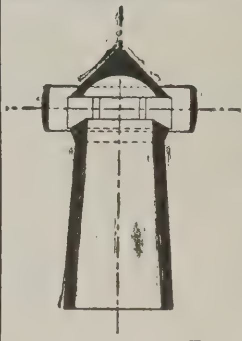
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Coseley.—Oct. 12.—Plans for school for 200 children for he Education Committee, at Dimmock Street, Parkeld, Coseley, W. Dudley. Conditions, one guinea, returnble on receipt of plans. Mr. Fred J. C. Poole, Secretary, ducation Offices, Coseley, near Bilston.

Halifax.—Oct. 7.—The Tramways Committee invite degns and tenders for tramway shelters. Particulars, with acings of sites, can be obtained on application to the orough Engineer, Town Hall, Halifax.

Hastings.—The Joint Committee of the East Sussex ospital and the King Edward VII. Memorial Fund invites rchitects to submit designs in competition for the proposed ew hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been ppointed assessor. Premiums of £125, £75, and £50 are fered. Conditions and instructions may be obtained (on ayment of £1 1s. deposit) from Mr. W. M. Rhodes, East ussex Hospital, Hastings.

London.—Oct. 31.—The Metropolitan Borough Council of t. Marylebone invite designs for new municipal buildings in arylebone Road. Deposit £1 1s., which will be refunded n receipt of a bona-fide design or return of conditions within ne month of receipt. All particulars from Mr. James ilson, Town Clerk, Town Hall, Marylebone Lane, Oxford treet, W.

Rochdale.—The Board of Management of the Rochdale nfirmary invite architects practising in Rochdale prior to anuary 1, 1911, to submit plans, designs, and estimates r extending the present buildings. Conditions of competiion, with other information, together with instructions to rchitects, can be obtained on application to the secretary. n assessor has been appointed by the committee. Mr. T. lvyn Kershaw, secretary, Secretary's Office, the Infirmary, ochdale.

Scotland.—The Town Council of Armadale invite archiects to submit plans for a public hall and offices, costing not ore than £2,500, completed, painted, and furnished. A remium of £15 for the selected design will be paid on its eing ascertained that the design can be carried out within he cost stated, and £10 will be paid for the next. The archiect submitting the successful design will be entrusted with he work at the usual professional remuneration. Architects ntending to submit plans will meet the Town Council on the round at Armadale on October 12, at 1.30 p.m. Mr. William aesar, Town Clerk, Armadale.

Uruguay.—Jan. 30.—The Ministry of Public Works nvite competitive plans for a town-improvement scheme nd for a new Government Palace at Monte Video. remiums of about £1,060, £640, and £425 are offered for he former scheme, and about £2,215 and £850 for the latter. esigns for the Government Palace must be submitted by an. 29, 1912, and for the town-improvement scheme by an. 30. A statement of the conditions of the competition in Spanish) may be seen by British firms at the Commercial ntelligence Branch of the Board of Trade, 73 Basinghall treet, London, E.C.

Wales.—The Cardiff Education Committee invite designs nd estimates in competition for a technical institute proosed to be erected in Cathays Park. Mr. J. S. Gibson. rchitect, will act as assessor. Full particulars will be sent architects on application, accompanied by a deposit of 2 2s., which will be returned to all architects submitting ona-fide designs or who return the conditions within six eeks. Mr. J. Jackson. director of education, Education ffices, City Hall. Cardiff.

CONTRACTS OPEN.

Barrow-in-Furness.—Oct. 9.—For erection of a carthed, store, office, and boundary wall in connection with the rovision of a storeyard in Back Latona Street, Walney sland, for the Corporation. The Borough Engineer's Office, arrow-in-Furness.

Barrow-in-Furness.—Oct. 10.—For provision and erecion of a portion of two partitions at Thwaite Street Boys' chool. The Borough Engineer's Office, Town Hall, Barrown-Furness.

Belfast.—Oct. 9.—For plumbing work in the administraion block at the new abattoir, Stewart Street. Deposit 1 1s. The City Surveyor, Town Hall, Belfast.

Bingley.—Oct. 19.—For the following works:—Bingley: ullingworth Council School, alterations and additions builder, joiner, slater, plumber, plasterer, and painter), for he West Riding Education Committee. The Education rchitect, County Hall, Wakefield. Send £1 deposit to the est Riding Treasurer, County Hall, Wakefield.

Bishopstoke.—Oct. 13.—For erection of a corrugated iron cookery and manual instruction room at Bishopstoke Council School (Hants). Deposit £2 2s. Mr. A. L. Roberts, architect to the Education Committee, The Castle, Winchester.

Blackburn.—Oct. 11.—For the erection of four w.c.'s and urinals at the workhouse. Mr. S. J. Lancaster, architect, 4 King Street, Blackburn.

Brigg.—Oct. 21.—For building extensions to the school house (including new dormitories, masters' room, day room, lavatories, bathrooms, &c.), for the Governors of Brigg Grammar School. (Mr. G. H. Allison, architect, Grimsby.) Send £1 1s. to Mr. F. C. Hett, clerk to the Governors, 11 Bigby Street, Brigg.

Broadstairs.—Oct. 9.—For the construction of public conveniences on the Parade and at the rear of the Council Offices. Mr. H. Hurd, C.E., town surveyor, Council Offices, Broadstairs.

Canterbury.—Oct. 9.—For the erection of a nurses' cottage at the workhouse. Deposit £1 1s. Mr. H. Dorè, architect, 25 Watling Street, Canterbury.

Churwell.—For the whole or any portion of the bricklayer, mason, joiner, plumber, plasterer, roof tiler, and painters' work to be done in the erection of a detached residence. Mr. J. Auty, A.R.I.B.A., architect, Peel Street, Morley.

Cleckheaton.—Oct. 7.—For the various works required in erection of pavilion, boundary walls, laying of green, &c., at Park View. Mr. W. Morton, architect, Central Chambers, Cleckheaton.

Consett.—Oct. 9.—For building a Primitive Methodist church, Sunday schools, and caretaker's house (whole tenders only) at Consett, Durham. Send names by October 9 to Messrs. T. E. Davidson & Son, architects, 1 Eldon Square, Newcastle-on-Tyne.

Corby.—For the whole or separate sections of the work required to be done at Hill House, Corby. Mr. T. Taylor Scott, F.R.I.B.A., architect and surveyor, 38 Lowther Street, Carlisle.

Denton (Lancs.).—Oct. 19.—For erection of an elementary school at Denton (Duke Street), for 778 scholars. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Dipton.—Oct. 9.—For additions to the killing shop and new stairs to hall at Dipton branch, for the Annfield Plain Industrial Co-operative Society, Ltd. Mr. C. Thos. Wilson, L.R.I.B.A., architect, 22 Durham Road, Blackhill.

Edinburgh.—Oct. 9.—For the whole works, comprising the carpenter and joiner, plumber, and plaster and cement works, to be executed in the erection of a public convenience at Sciennes Road. The Burgh Engineer, 1 Parliament Square.

Edinburgh.—Oct. 16.—For erection of a proposed lavatory at the north entrance to the Blackford Hall. Mr. James A. Williamson, A.R.I.B.A., City Chambers, Edinburgh.

Edinburgh.—Oct. 17.—For the extension (second portion) of the laboratory building at the Edinburgh Royal Botanic Gardens (whole tenders only), for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1s. H.M. Office of Works, 3 Parliament Square, Edinburgh.

Erith.—Oct. 31.—The London County Council invites tenders for the construction of an additional engine-house, &c., at the Southern Outfall Works, Crossness, in the Urban District of Erith, Kent. Send £10 deposit to the Cashier of the Council. Mr. Maurice Fitzmaurice, C.M.G., the Chief Engineer of the Council, the County Hall, Spring Gardens, S.W.

Exmouth.—For carrying out alterations and putting in new shop front in Exeter Road. Mr. E. E. Ellis, architect, Exmouth.

Failsworth.—Oct. 19.—For erection of an elementary school at Failsworth (Minor Street), near Manchester, for 1,000 scholars. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Ferryhill (Durham).—Oct. 7.—For erection of four dwelling-houses at Ferryhill Village, for the Cornforth and Coxhoe Co-operative Society, Ltd. Ferryhill Branch Stores manager, and Mr. Carrick Stokoe, secretary, Co-operative Society, Coxhoe.

Grimsby.—Oct. 13.—For some small alteration works to the Swallow Church of England School. Mr. G. Allison, architect, Regent House, West Saint Mary's Gate, Grimsby.

Handsworth, &c.—Oct. 10.—For erection of stables for the Great Western Railway Company, at Handsworth, Wednesbury, and Langley Green. The Engineer, Wolverhampton Station, Wolverhampton.

Heversham.—Oct. 11.—For erection of a country house, &c., upon a site at Heversham. Mr. S. Shaw, F.R.I.B.A., architect, Kendal.

Horbury (Yorks).—Oct. 19.—The West Riding Education Committee invite whole or separate tenders for the following works—viz., builder, joiner, slater, plumber, plasterer, painter, ironfounder, and smith—in connection with the Horbury new school. The Education Architect, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Ireland.—Oct. 16.—For erection of a Carnegie Library and Technical Institute opposite the Town Hall, Rathmines Road, for the Rathmines Urban District Council. Deposit £2 2*s*. Messrs. Batchelor & Hicks, architects, 86 Merrion Square. Messrs. Patterson & Kempster, quantity surveyors, 95 Lower Leeson Street, Dublin.

Keighley.—Oct. 7.—For a spinning mill at Keighley (for all trades in one contract). Forward names by October 7 to Messrs. J. B. Bailey & Son, architects, 3 Scott Street, Keighley.

Lancaster.—Oct. 14.—For the work in connection with alterations to Quernmore new schools. Mr. R. E. Jackson, architect, 6 The Arcade, Lancaster.

Leytonstone.—Oct. 26.—For erection of additions to the nurses' home at their infirmary, Whipp's Cross Road, Leytonstone, N.E., for the Guardians of West Ham Union. Send names and £5 deposit by October 9 to Mr. F. J. Sturdy, F.R.I.B.A., 45 Finsbury Pavement, E.C.

Letchworth.—Oct. 19.—For erection and completion of a County Council school at Letchworth Garden City, accommodation 388. Deposit £2 2*s*. Mr. Urban A. Smith, county surveyor, Hatfield.

Luton.—Oct. 23.—For erection of a new block of buildings for women's infirmary and nurses' home at the workhouse. Deposit £1 1*s*. Messrs. Gotch & Saunders, architects, Kettering.

Macclesfield.—Oct. 17.—For alterations to the existing technical school premises, and the erection of additional premises for a cookery centre and workshops on a site adjoining in Old Park Lane. Deposit £2 2*s*. Mr. W. Grieves, Town Hall, Macclesfield.

Manchester.—Oct. 9.—For the construction of reinforced concrete plunge baths, floors, &c., at the baths, Burton Road, Withington. Deposit £1 1*s*. The City Architect's office, Town Hall.

Manchester.—Oct. 21.—For erection of the George Leigh Street Municipal school, Ancoats. Deposit £2 2*s*. The Education Offices, Deansgate, Manchester.

Marple.—For the erection of business premises, for the Compstall Co-operative Industrial Society, Ltd. Forward names and £1 1*s*. deposit to Mr. F. E. L. Harris, A.R.I.B.A., Co-operative Wholesale Society, Ltd., 1 Balloon Street, Manchester.

Murton.—Oct. 14.—For erection of twelve cottages at Murton village, for the Durham Aged Mine Workers' Homes Association. Messrs. C. Johnson & Son, architects and surveyors, Cockton Hill, Bishop Auckland.

Newcastle-on-Tyne.—Oct. 10.—For the re-building of the Fox and Hounds Inn, West Turnpike. Messrs. W. & T. R. Milburn, FF.R.I.B.A., architects, 4 Mosley Street, Newcastle-on-Tyne.

North Berwick.—Oct. 10.—For the following work in connection with the erection of the Edington Convalescent Home, namely, excavator, mason and brick work, carpenter, joiner and glazier work, slater work, plaster work, plumber work, painter work. Deposit 10*s*. 6*d*. Mr. W. Ross Young, burgh surveyor, North Berwick.

Nottingham.—Oct. 9.—For the following works, for the Estates Committee, viz.: (1) Alterations to Fox and Hounds public house, Machine Street, and adjoining property; (2) alterations to property in Rick Street, Millstone Lane, and Kent Street. Deposit £1 1*s*. each contract. Mr. E. B. Lewis, city architect, Guildhall, Nottingham.

Plymouth.—Oct. 10.—For alteration of and refixing old fittings, &c., and providing and fixing new fittings, tables, &c., also for hot and cold water plumbing works, &c., in the laundry at the workhouse. Forward names by October 10 to the architects, Messrs. Thornely, Rooke & Barron, 11 The Crescent, Plymouth.

Ponteland.—Oct. 17.—For erection of a new station, stationmaster's house, and cottages at Darras Hall, near Ponteland, Newcastle-on-Tyne, for the North-Eastern Railway Co. Mr. W. Bell, the company's architect, Central Station, Newcastle-on-Tyne.

Porthcawl.—Oct. 13.—For erection of houses at Porthcawl, for the Mercies Building Club. Mr. D. Griffiths, architect, Dock Street Chambers, Porthcawl.

St. Levan.—Oct. 7.—For alterations and improvements to St. Levan Council School, for the Cornwall Education Committee. Mr. Sampson Hill, architect to the Committee, Green Lane, Redruth.

Saltwood.—Oct. 16.—For the erection of new offices at the National Schools. Mr. A. C. Eddis, correspondent, Saltwood, Hythe, Kent.

Sherburn (Durham).—Oct. 17.—For erection of a County Council School for about 300 scholars. Mr. W. Rushworth, Shire Hall, Durham.

South Brent.—Oct. 12.—For erection of a dining hall, kitchen, &c., at the Devon and Cornwall Sanatorium for Consumptives, Didworthy, South Brent. Mr. Dan Ward, 7 Courtenay Street, Plymouth.

Stockport.—Oct. 16.—For erection of a central library, for the Corporation. Deposit £2 2*s*. Messrs. Bradshaw & Gass, architects, 19 Silverwell Street, Bolton; or Messrs. Hewitt & Son, quantity surveyors, 33 Brazennose Street, Manchester, and 35 Great Underbank, Stockport.

Torquay.—Oct. 9.—For the erection of Homelands Council School. (Messrs. E. Appleton & Son, architects, Torquay.) Send names and £5 deposit by Oct. 9 to Mr. F. S. Hex, Town Clerk, Town Hall, Torquay.

Uxbridge.—Oct. 23.—For supply of schemes and estimates for additional heating apparatus at the Joint Hospital, Kingston Lane, Hillingbon, Uxbridge. Mr. Charles Woodbridge, Clerk to the Joint Hospital Board, 38 High Street, Uxbridge.

Wales.—For erection of proposed extensions to bottling stores and stables at the Anchor Brewery, Newport, Mon. Deposit £2 2*s*. Messrs. Swalwell & Havard, architects and surveyors, 202 Dock Street, Newport, Mon.

Wales.—Oct. 9.—For repairs, &c., at Patriot Hotel and shop adjoining, Dowlais, for Messrs. A. Buchan & Co., Rhymney. Mr. J. Llewellin Smith, M.S.A., Aberdare.

Wales.—Oct. 9.—For erection of five concrete cottages at Gellifaelog, Dowlais, for the Merthyr Tydfil Corporation. Deposit £1 1*s*. The Deputy Surveyor, Town Hall, Merthyr Tydfil.

Wales.—Oct. 9.—For the following works for the Glamorgan County Council, viz.:—(1) Additions to the Council school at Cornelly, near Pyle; (2) boundary walls at Cwmlai Council school, near Tonyrefail; (3) additions to the Gilfach Fargoed infants' school; (4) additions to the Gilfach Fargoed old school; (5) levelling playground at Nanthir Council school, near Blaengarw; (6) fencing at Rhydygwern Council school, near Machen. The Glamorgan County Council Offices, Westgate Street, Cardiff.

Wales.—Oct. 10.—For the construction of a new booking office, footbridge, &c., at Crumlin Station, Mon., for the Great Western Railway Company. The Engineer, Newport Station, Mon.

Wales.—Oct. 14.—For the following works at St-y-Nyll, St. Brides-super-Ely, about one and a-half miles from St. Fagans, viz., the erection and completion of two cottages and adaptation of a set of farm buildings, for the Glamorgan County Council. The County Council Offices, Westgate Street, Cardiff.

Wales.—Oct. 14.—For erection of new laundry at Ely Workhouse, for the Guardians of Cardiff Union. Deposit £2 2*s*. Mr. E. Seward, F.R.I.B.A., architect, Queen's Chambers, Cardiff.

Wales.—Oct. 17.—For erection of two new piggeries and certain repairs at Elm Farm, in the parish of Undy, for the Monmouthshire Small Holdings and Allotments Committee. Mr. C. R. Harding, county land agent, County Council Offices, Newport, Mon.

Wales.—Oct. 18.—For erection of a detached villa residence at Radyr. Deposit £1 1*s*. Mr. W. H. D. Caple, F.R.I.B.A., architect, Church Street, Cardiff.

Weybridge.—Oct. 11.—For erection of a technical institute at Weybridge, Surrey. (Messrs. Jarvis & Richards, architects, 10 Queen Anne's Gate, Westminster, S.W.) Send in names and £2 2*s*. deposit by October 11 to the Secretary, Surrey Education Committee, County Education Office, Kingston-upon-Thames.

Widnes.—Oct. 14.—For taking down Old St. Mary's Church and for the structural material; also for the organ and church furniture, either separately or in one lot. Rev. G. Stephen Jones, St. Mary's Vicarage, Widnes.

York.—Oct. 17.—For erection of central stores, &c., for hotels department at York, for the North-Eastern Railway Co. Mr. William Bell, the company's architect, at York.

TENDERS.

ASHINGTON (NORTHUMBERLAND).

For erecting a Council school to accommodate 1,062 scholars, together with a cookery room and caretaker's dwelling-house.

John Douglass, Hepscott (*accepted*)	£13,284	0	0

There were seventeen tenders received.

BIRMINGHAM.

For erection of two homes for infants at the Cottage Homes, Marston Green, near Birmingham. Messrs. C. **Whitwell & Son**, architects, Birmingham.

Bishop	£3,284	0	0
Elvins & Sons	3,265	0	0
Barnsley & Sons	3,218	0	0
Morgan	3,211	0	0
Hughes	3,207	0	0
Johnson	3,117	0	0
Whitehouse & Sons	3,023	0	0
Cox & Co.	3,000	0	0
Holyoak & Sons	2,992	0	0
Smith	2,956	0	0
Taylor	2,926	12	0
Turton	2,926	0	0
Crowder	2,877	0	0
Swift	2,851	12	0
P. W. Cox, Handsworth (*accepted*)	2,840	0	0

CHIPSTEAD COMMON.

For alterations and additions to the Children's Homes (recently known as the Rock), Chipstead Common, near Sevenoaks. Mr. **Ernest Pawley**, architect, Sevenoaks.

Lowe	£869	0	0
Crossley & Son	808	0	0
Myall Bros.	765	0	0
Tong	750	0	0
Bassett	745	0	0
Banks	697	0	0
Bentley	694	0	0
Tye	692	0	0
Bailey, Parkins & Goates	688	0	0
Heath	687	5	10
North Downs Building Co.	680	15	0
Zealey, Sevenoaks (*accepted*)	630	0	0

DAGENHAM.

For addition to factory, for the Sterling Telephone and Electric Co., Ltd. Mr. **George A. Lansdown**, F.R.I.B.A., architect, 9 Regent Street, S.W.

Gray	£5,866	0	0
Perry & Co., Ltd.	5,225	0	0
Carmichael	5,158	0	0
Negus	5,138	0	0
F. & H. F. Higgs	5,066	0	0
Marsland & Sons	4,965	0	0
Snewin Bros. & Co.	4,947	0	0
Parker & Sons (*accepted*)	4,789	0	0

DONCASTER.

For alterations and extension to business premises, 18-20 Station Road. Mr. **H. B. Beck**, architect, Doncaster.

Arnold & Son	£1,379	8	0
Beastall & Sons	1,325	0	0
Sprakes & Sons	1,316	10	0
Mullins & Richardson	1,290	16	9
Gill & Son, Doncaster (*accepted*)	1,277	0	0

EPPING.

For sewerage works at North Weald Bassett. Messrs. **Tooley & Foster**, engineers, Buckhurst Hill, Essex.

W. & C. **French**, Buckhurst Hill (*accepted*)	£3,497	0	0

EPSOM.

For erection of an operating room at the workhouse infirmary. Mr. **A. C. Williams**, architect, 53 Doughty Street, W.C.

Tiled walls.

Cropley Bros.	£324	0	0
Roll & Taylor	324	0	0
Taylor & Blofield	311	13	0
Impson	305	0	0
H. G. & A. **Osman**, Oxshott (*accepted*)	240	0	0

Plastered walls.

Roll & Taylor	£271	0	0
Cropley Bros.	268	0	0
Taylor & Blofield	262	13	0
Impson	260	0	0
H. G. & A. Osman	200	0	0

FARNHAM.

For additions to the maternity ward and construction of an iron emergency staircase.

Mardon & Mills	£1,338	10	0
Martin & Wells	1,275	0	0
Crosby & Co.	1,230	0	0
Snugs	1,124	0	0
Adams, Alton (*accepted*)	1,081	15	0

KETTERING.

For erection of Carey Memorial Church. Messrs. **Cooper & Williams**, architects, Kettering.

	Oak Woodwork.	Pitch-pine Woodwork.
Industrial Co-operative Society, Ltd.	£3,888	£3,803
Smith, Edmunds & Co.	3,680	3,538
Phillips & Slow	3,699	3,489
Smith & Bunning	3,669	3,457
Bamford	3,398	3,248
Norris	3,431	3,201
Andrew	3,310	3,084
Drever	3,166	3,000
Lewin & Son	3,199	*2,979

* Accepted.

LONDON.

For erection of lavatory accommodation and shelters at Wormholt Park, for the Hammersmith Borough Council. Mr. **H. Mair**, M.Inst.C.E., surveyor, Hammersmith, W.

Tinson Bros. & Co.	£894	4	0
Slade	856	18	0
Handover & Co.	853	5	11
Gasson, Cockerill & Co., Ltd.	780	0	0
Millman	740	0	0
Dearing & Co.	740	0	0
Bull	697	19	8
Chessum & Sons	694	0	0
Johnson & Manners	680	0	0
F. & G. Foster	674	0	0
Bendon, Ltd.	672	0	0
Jarman & Co.	661	0	0
Roberts & Co.	655	0	0
Lown & Co.	651	15	7
Wilkinson	649	12	10
Brown & Sons	642	8	8
Bonney & Son	625	0	0
Hampton, Ashford (*accepted*)	593	8	3

LONGTON.

For the remodelling of Longton Town Hall, for the County Borough of Stoke-on-Trent. Mr. **J. H. Beckett**, A.R.I.B.A., architect, Longton.

Willcock & Co.	£8,550	0	0
Grants	8,000	0	0
Godwin	7,879	0	0
Tompkinson & Bettelley, Longton (*accepted*)	7,375	0	0

PORTISHEAD.

For partially pulling down certain buildings at Portishead Dock and erecting a maize flaking mill and store, for Messrs. E. Bailey & Son, Ltd. Mr. **P. B. Rigg**, architect, Frome.

Hatherly & Co.	£4,757	0	0
Hayward & Wooster	4,450	0	0
Broad & Sons	4,400	0	0
Chown	4,380	0	0
Love	4,072	0	0
Marsh & Stone	4,030	0	0
Hayes & Sons	3,999	0	0
Colborne	3,999	0	0
Peerless, Dennis & Co.	3,984	0	0
Lovell & Sons	3,897	0	0
Wilkins & Sons	3,864	0	0
Walters & Son	3,837	0	0
G. Downs & Son	3,650	0	0
Heard	3,583	0	0
Pittard & Son	3,490	0	0
Weeks, Bedminster (*accepted*)	3,430	0	0
Bray & Slaughter	3,418	0	0
Gluyas	3,276	0	0

ST. AUSTELL.

For the erection of a public convenience at Market Hill.

Hortop	£224	0	0
Bennett	210	0	0
Pearce	186	0	0
Giles (*accepted*)	181	0	0

SALISBURY.

For repainting certain portions of the workhouse and carrying out alterations.

Pearce & Son	£177 10 0
Bevis	146 0 0
Curtis & Son	127 10 0
E. A. Jenkins & Son (*accepted*)	126 10 0

SIDCUP.

For erection of a Fire Brigade Station, for the Foots Cray Urban District Council. Mr. A. Farnham, F.S.I., surveyor, Sidcup, Kent.

Knight	£1,199 9 6
J. & M. Patrick	1,194 0 0
Garlick & Co.	1,170 19 0
Kidman Bros.	1,132 0 0
Lowe & Co.	1,120 0 0
Gibson & Co.	1,118 0 0
Howard	1,099 0 0
Pool	1,069 0 0
Thomas & Edge	1,053 0 0
Myall Bros.	1,040 0 0
Smith & Sons	1,035 10 0
Webster & Sons	1,009 0 0
R. & J. Butler	1.001 0 0
Ellingham, Dartford (*accepted*)	980 0 0
Surveyor's estimate	988 19 4

STANNINGTON.

For the superstructure of the new asylum at Stannington, near Morpeth, for the Corporation of Gateshead. Messrs. George T. Hine & H. Carter Pegg, architects, Westminster, S.W.

Miller	£85,410 0 0
Nicholson	84,811 0 0
Weir	84,000 0 0
Lowry	83,200 0 0
Cooper	82,449 0 0
Pringle	81,200 0 0
Easten	79,960 0 0
Pethick	77,777 0 0
Moss, Loughborough (*accepted*)	76,600 0 0
White	76,599 0 0

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF BUILDINGS PROJECTED OR RECENTLY COMMENCED.

(N.B.—Local authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

Cheshire.

Chester.—Electricity generating station (£12,500). Mr. Britton, engineer.

Ellesmere Port.—Schools, Enfield Road (accommodation for 100 children).

Macclesfield.—Council School, Athey Street. Mr. Bradburn, architect.

Cornwall.

Penzance.—School to accommodate 700 children.

Cumberland.

Corby.—Alterations at Hill House. Mr. T. T. Scott, F.R.I.B.A., architect.

Hensingham.—Church.

Kingstown.—Mission Church for 650 persons (£1,000).

Derbyshire.

Derby.—Schools, Reginald Street (£1,800).

Devon.

Totnes.—Cattle and Sheep Market alterations. Messrs. Reeves & Harris, contractors (£820).

Essex.

Broomfield.—Council School (£4,500).

Buckhurst Hill.—New Forest Hospital (£4,000). Messrs. H. Tooley & A. Needham Wilson, A.R.I.B.A., architects.

Burnham.—House, Creeksea Road.

Chelmsford.—Five cottages, Lower Anchor Street.

Thirty-eight workmen's cottages (£7,400). Mr. P. T. Harrison, Borough Surveyor.

Three houses in Rainsford and Riverside Avenues.

Colchester.—Elementary school.

Earls Colne.—School.

Grays.—Special school. Mr. Shiner, architect.

Harwich.—Council School, Upper Dovercourt, for 700 to 800 children.

Hornchurch, South.—School enlargement (£1,630).

Messing.—Council School.

Ongar.—Boys' Council School for 110 boys.

Tilbury.—Cookery and Handicrafts Centre.

Woodford Bridge.—Barnardo Saturday House (£2,000).

Hampshire.

Alton.—House, Mount Pleasant Road.

Southampton.—Hartley University College: Arts block.

Hertfordshire.

Letchworth.—Garden City Tenants' Institute: the Thomas Thornton memorial wing (£500).

Watford.—Polytechnic.

Kent.

Chatham.—Council School.

Harvel.—Village Hall (£100).

Meopham.—Pumping station, Walnut's Wood, for the Gravesend and Milton Waterworks Company. Messrs. W. H. Archer & Son (of Gravesend), contractors (£6,000).

Lancashire.

Aintree.—Wesleyan church for 800 persons (£5,000).

Ancoats.—Municipal School, George Leigh Street.

Manchester.—Theatre, Quay Street (£26,000). Messrs. Farquharson, Richardson & Gill, architects.

St. Ann's Church, alterations.

Waterloo.—St. John's Church Hall (£2,500).

Lincolnshire.

Rippingale.—Eight workmen's houses (£1,250).

Skegness.—Cottage Hospital for the district, Wainfleet Road (£900).

Stamford.—St. Mary's Church, tower and spire restoration (£1,500). Mr. T. G. Jackson, R.A., architect.

Welton-by-Lincoln.—Choir Vestry (£350).

Middlesex.

Hanwell.—Laundry, Half Acre.

Staines.—Central Power Station of the Egham and Staines Electricity Company.

Monmouthshire.

Pengam.—Five hundred ("Garden City") houses. Sixty workmen's houses.

Northamptonshire.

Brixworth.—Thirty to forty cottages, Northampton Road.

Oundle.—School for 240 children.

Raunds.—Council School for 500 children.

Nottinghamshire.

Kirkby-in-Ashfield.—Midland Railway Station: additional waiting-rooms. Company's engineer.

Oxfordshire.

Banbury.—Forty workmen's dwellings, Bath Road (£6,100).

Somerset.

Castle Cary, Glastonbury and Yeovil.—Drill Halls.

Staffordshire.

Bridgtown.—Council School.

Bucknall.—Infectious Diseases Hospital extension. Mr. Elijah Jones (of Hanley), architect.

Burslem.—Electricity Supply Works extensions. Messrs. Grant, contractors (£615).

Hanley.—Electricity Supply Works: new power house. Messrs. Grant (of Burslem), contractors for the structure (£5,745). Messrs. Heenan & Froude (of Manchester), contractors for the ironwork (£300). Messrs. F. Mitchell & Son (of Manchester), contractors for reinforced work (£700).

Presbyterian Sunday Schools. Mr. H. W. Shaw, architect. Mr. Ellis, contractor.

Longton.—Town Hall alterations (£8,000). Messrs. Tompkinson & Bettelley, contractors (£7,375).

Stoke.—Electricity Supply Works extensions. Messrs. J. Meiklejohn & Son, contractors (£925).

Stone.—Slaughterhouse, Stafford Street.

Surrey.

Epsom.—(Supplementary to September 15) Infirmary Operating Ward. Messrs. Osman (of Oxshott), contractors (£240).

Farncombe.—Parish Church Vestry (£250).

Haslemere.—Eighteen workmen's cottages.

Weybridge.—Technical Institute. Messrs. Jarvis & Richards (of London), architects.

Sussex.

Hastings.—Medical Baths.

Hove.—R. C. Church.

Shoreham.—St. Mary's Hall and Sunday Schools (£1,000).

Worcestershire.

Evesham.—R. C. Church, High Street (£6,000).

Tenbury.—Country house for Norman Hunt, Esq. Mr. P. S. Shipton (of Wolverhampton), architect.
Worcester.—Three houses for Dr. Barnardo's Homes, Boys' Garden City.

Yorkshire.
Kilburn.—Village Institute (£300). Mr. R. Thompson (Hon. Sec.), architect. Mr. Cornforth (of Coxwold), contractor.
York.—House and school-room, Chestnut Avenue.
House: rebuilding at Clifton.
Alterations and additions, 12 Park Place.

WALES.

Cadoxton.—Council School.
Cardiff.—Women's municipal lodging-house: conversion of existing houses in Charles Street.
Ely.—Workhouse Laundry. Mr. E. Seward, F.R.I.B.A. (of Cardiff), architect.
Neath.—Siloh Mission Hall for the Siloh Congregational Church, Melincrythan. Mr. J. C. Rees, architect. Messrs. Waring, Cole & Waring, contractors (£1,050).
Radyr.—Villa residence. Mr. W. H. D. Caple, F.R.I.B.A. (of Cardiff), architect.
Ruthin.—Board of Guardians: Children's cottage home.
Swansea.—Warehouse and offices, Cambrian Place. Messrs. C. S. Thomas, Meager & Jones, architects.
Workhouse: Nurses' Home.
Ystalyfera.—(Supplementary to September 15) Twenty-eight houses (£6,500).

SCOTLAND.

Arbroath.—Alma Works extension.
Auction Mart, Market Place.
Berwick, North.—Edington Convalescent Home. Mr. W. R. Young, Borough Surveyor.
Carmyllie.—West Schoolhouse alterations (£135).
Creich.—Presbyterian Church at Bonar Village.
Dunfermline.—Public house and offices, New Row.
School clinics and college class-rooms. Mr. Barclay (of Glasgow), architect (£16,000).
Edinburgh.—Bedford Infantry Barracks, Colinton: Barrack and Band Blocks.
Glasgow.—Buildings, 302-312 Buchanan Street, for the Caledonian Railway Company.
Calton Public School annexe.
Greenock.—Club house for men at Messrs. Fleming, Reid & Co.'s (Ltd.), worsted mills.
Two tenement blocks, Kelly Street. Mr. W. Kirkwood, builder.
Villa, Octavia Terrace.
Limekilns.—U. F. Church belfry reconstruction. Mr. Hyppolite J. Blanc, F.R.I.B.A. (of Edinburgh), architect.
Muirhead of Liff.—Board School.

GLASGOW BUILDING TRADE.

The Dean of Guild, Mr. Francis Henderson, at a sitting of the Dean of Guild Court last week reviewed the business of he Court for the past year. He pointed out, says the *Glasgow Herald*, that great depression had marked the condition of the trades most closely connected with the work of the Court. While during the past year the number of linings howed no material decrease, the valuations were less by £140,000 than in the preceding twelve months, and both as egards linings and valuation it was the lowest in the past wenty years.

The Dean of Guild said he regretted to say that the figures for the year which ended on August 31 did not give any cause for congratulation. They indicated only stagnation. His predecessor at the close of his tenure of office said that he had to regret the fact that the two years during which he had presided over the Court were marked by a serious and regrettable depression in the trades most closely connected with the work of the Court, and that he was sorry to think that there eemed to be no indications of a removal of that depression. The figures of the year which had just closed confirmed these forebodings. In the twelve months there were 367 linings, involving a total valuation of £737,679. The number of linings was not materially less, but the valuations showed a ecrease of not less than £140,000 upon the previous year, which was itself a lean year. This last year had been the lowest for linings and for valuation since 1890-91. From that date there was a great boom in the building trade, which reached its height in 1897-98. A slight depression followed, but the record year of 1901-02 came, and from that time there had been a gradual decline, until now they reached a point which was the lowest during the last 20 years. He hoped that they had now got to their lowest point, and that they would soon see a growing activity in the building trade. But he hardly saw how they could expect any substantial increase for some time to come while the Tramways Committee of the Corporation continued their present philanthropic policy of providing the citizens with such cheap and frequent opportunities of going outside the city, thus facilitating the settlement of the inhabitants in districts which were as yet beyond the jurisdiction of that Court. The only event likely to occur which would bring about any material change would be the enlargement of their civic borders so as to include those districts where at present building operations were principally carried on. It must not be overlooked also that there were, according to the latest statistics, something like 19,055 unlet houses and 4,608 shops, &c., within the city boundary.

The work of the Court was in nearly every case really important work affecting the interests of the city and its great population in many ways, and affecting the convenience and welfare of future generations in a manner that only those who were gifted with the prophet's vision could possibly realise. The statutory powers conferred upon the Court were many. They were framed for the good of the city and its people. Occasionally they might bear with undue weight upon particular cases. Their aim had been to administer these statutory provisions in such a way as to be, as far as possible, fair to the individual and for the general good, and he did not think they had been altogether unsuccessful. There had been several visitations during the year. Some of these had been in connection with buildings in what were known as hollow squares. One of his predecessors—Lord Inverclyde—speaking in 1903, said that in a general way the feeling of the Court was greatly against the granting of linings for the erection of buildings in hollow squares, and that it seemed to the Court desirable that in the more thickly populated districts of the city there should be the greatest possible amount of open space within the bounds of hollow squares, not only for sanitary reasons, but for the general wellbeing of the large population who were in many instances thronging the buildings on the four sides of the squares. That still expressed the feeling of the Court. The Dean of Guild, in conclusion, thanked the lyners for the attention they had bestowed on the examination of the plans and their valuable technical advice; the assessor for placing at his disposal his great knowledge of the law and his long experience of the work of the Court; the Master of Works, the Procurator-Fiscal, and the Clerk of the Court for the care they had taken in the preparation of the cases so as to facilitate the work; and he expressed to all the members of the legal profession whom they had seen there his high appreciation of their invariable courtesy and consideration and readiness to carry out the wishes of the Court. Since occupying his present position he had made several alterations and improvements in the details of the procedure of the Court which he ventured to think had been to the advantage of all concerned.

The New Town Hall Committee of Newcastle Corporation has expressed itself in favour of the ground on which the Northumberland baths stand as a site for a new town hall. It was resolved that the sub-committee should make inquiries as to the probable cost of the erection of such a building, and also the cost of making new baths on the opposite side of Northumberland Road.

Mr. Charles Swain, architect, Manchester, has prepared the plans for the theatre now in course of erection in Great Bridgewater Street, Manchester, and to be known as the New Queen's Theatre. The laying of the foundations was begun in July last. The total cost of building and equipment is estimated at £20,000.

The Chelmsford Town Council have adopted a scheme prepared by Mr. P. T. Harrison, the surveyor, for the erection of thirty-eight cottages at a cost of £7,338. Eight cottages will be built to let at 6*s*. a week, fourteen at 5*s*. a week, and sixteen cottages at 4*s*. per week. The full scheme shows provision for 143 houses at an outlay of £23,000.

Considering the size of London, says an American Consular report, the fire losses appear to be very small. This is accounted for by the fact that there are practically no frame buildings in London, that the warehouses and business premises generally are of slow combustion construction, and that the dwelling-houses are usually built of stone or brick, with a minimum amount of inflammable wood material. The humidity of the climate also tends very materially to keep down fire losses.

PUBLIC WORKS IN SOUTHERN ITALY.

It seems impossible to arrive at a criterion as to the real extent of the commercial development of Naples, says the British Consul, in a recent report on Naples and district for the past year. New streets with handsome up-to-date piles of flats—the rents of which are in advance of anything hitherto heard of in this city—are occupied as soon as they are licensed for letting; and yet rents are continually rising, showing unmistakably that there is a demand for more housing space. In the more densely populated quarters of the town there are no tenement houses with vacant rooms. Tramway lines are being extended in order to bring the outer suburbs into closer relation with the town, so that the labouring classes may be able to find lodgings there, and cheap workmen's services have been instituted at certain hours of the day in order to enable the labouring classes to avail themselves of housing in a larger radius from the city proper. In order further to find a solution for the burning question of housing an ever-growing population, the Government is projecting a law to encourage the building of cheap dwellings which shall be exempted from property tax for a period of ten years, whilst houses for the better classes are to be exempted from taxes for half the period mentioned. These remedies are to be general all over Italy.

The Civic Council of Naples, in order to cope with its own local problem, has granted the sum of £12,000 a year for the space of fifty years, free of interest and reimbursement, to an institution created for the construction of popular dwellings, the first payment to begin with 1911. The object of the municipality is to enable the construction company to borrow money cheaply in order that the work may be proceeded with expeditiously. The Civic Council require the popular dwellings not to exceed a stipulated rent.

The neighbouring town of Castellammare has been authorised to hold a lottery not to exceed £40,000, free of taxes, for the benefit of the company which is to construct workmen's dwellings there.

The very limited Custom House accommodation was the source of serious complaints to the metropolitan authorities. In consequence, after an inquiry, the central authorities consented to amplify the available warehousing, and provision to that effect has been included in the law for the benefit of Naples recently laid before the Italian Parliament.

The new law just mentioned provides for the completion of the new express railway between Rome and Naples now in course of construction being considerably accelerated. In 1906 contracts for 11,000,000 lire of the line were given out. In 1910 work for 15,000,000 lire was further put out to contract. The section from the Amsena River-Formia includes two big tunnels. One of these—the Montorso, 7,750 metres long—was to be completed towards the end of 1910. In 1911 the section from Naples to Minturno, extending from 13,142 to 27,717 metres and including the Messico Tunnel between the proposed station of Mondragone and Sessa Auranca, will be put up for tender in two lots.

Progress is being made for the appropriation of the land for the Naples section of the line and for the station. It is proposed to complete this as soon as possible, in order to bring it into use as a metropolitan line. This urban section is 8,900 metres in length, of which 3,150 metres are in the open, and the rest consist of tunnelling, mostly under the city of Naples. The main station is to be at Fuorigrotta, with subsidiary stations in the town. During 1910 the Minister for Public Works promised that the Naples-Rome express line should be completed much in advance of the original time estimated for its termination, and made special provision for extra credits for this purpose.

The most important work in South Italy is that connected with the provision of drinking water for the Puglian provinces. The contract for this work provides for its completion by August 1916, within eleven years of its commencement. The first estimated cost was about £5,000,000. The canalisation was to extend to about 3,500 kiloms., and some 4,000 workmen were employed on the work. The main aqueduct was to be 219½ kiloms. in length, of which 90 were to be through tunnels, 114 in trenches, 6 in bridging, and 6 of elevating syphons, besides 1,668 kiloms. of primary and secondary canalisation and about 800 kiloms. of workings in the different municipal districts. No less than 150 reservoirs are required, as well as other masonry work. To date the work done consists of 30 kiloms. of tunnelling and about 5 kiloms. of trenching; the work was begun in 1906. Great dissatisfaction is expressed with the way the work is progressing, and there is some prospect of the Government itself assuming the continuation of the work, which, when completed, should give 1,100 gallons of water per second. It is proposed alternatively to increase the price to be paid for the work to nearly £6,000,000, to allow an increase in the annual grant from 7,000,000 to 14,000,000 lire, in return for which the contractors are to deliver the work completed by 1914 as far as Bari, and the entire work by 1916.

The port of Bari being unprotected against the northern currents, continuous dredging is required to prevent silting. To remove this inconvenience the construction of a breakwater from San Cataldo eastwards has been proposed. An expenditure of about £33,000 has been sanctioned for quays now in course of construction between the Pizzoli mole and San Cataldo lighthouse. Part of the space that becomes available will serve for the erection of bonded warehouses; another part will be used as a coal wharf. For the widening of the Pizzoli mole about £17,000 will be expended, and some £13,000 for deepening the water basin alongside. As soon as the new harbour works are sufficiently advanced port and railway station will be connected with each other by a special line.

An additional expenditure of £11,000 has been authorised for the completion of the great tobacco factory at Bari. The construction of artillery barracks on the actual drilling ground (Campo San Lorenzo) has been decided upon; the contribution of the town towards the total expense is to be £6,000. The restoration of the municipal theatre (Teatro Piccini) will be started forthwith, and contracts for the masonry work have already been placed. Projects for the construction of the new prison are still under study. The ancient castle of Bari, which is now used as a prison, is to be completely restored, and will probably be converted into a museum. The semaphore, now on the castle tower, will be removed to the top of the neighbouring Santa Clara church. A scheme has been submitted for the restoration of the Castel de Monte (near Corato), one of the finest historical castles in South Italy, at an expense of about £4,000.

The London County Council are applying for Parliamentary powers to purchase sites for seventeen new schools.

The Rotherham Higher Standard School in Moorgate, Rotherham, opened last week, was erected from the designs of Mr. D. B. Jenkinson, A.R.I.B.A., who was placed first by the assessor in a local competition held in 1908. The total cost of the scheme is £17,550. The general contractors for the work were Messrs. Ash, Son & Biggin, Ltd., of Sheffield.

Mr. Douglas Strachan, of Aberdeen, has received a commission from the British Government to supply designs for two stained glass windows which are to be provided by this country towards the embellishment of the Palace of Peace at The Hague.

The Swansea Sewerage Committee have engaged Mr. Midgley Taylor, C.E., to report on a comprehensive scheme for the drainage of the town and the adjacent area, which it is proposed to absorb by a borough extension scheme. In the report due consideration will be given to the borough engineer's proposal for an outfall in the Bristol Channel off Bracelet Bay.

The Swansea School Building Sub-Committee last week discussed in camera a report by the architect (Mr. Laurance) as to the provision of further school accommodation. It was decided that on the old Training College site an elementary school be erected to accommodate 800 children, and the architect was directed to prepare plans. The officials were instructed to open up negotiations for a site for a new girls' secondary school. Mr. Laurance, the architect, was instructed to prepare plans for additional departments at Cwmbwrla and Brynmill schools, which will provide altogether for 800 more children, and in both cases provision is to be made for rooms for medical inspection and meals.

Mr. Paul R. Montford, London, the sculptor chosen to execute the statue of the late Sir Henry Campbell-Bannerman, to be erected in Stirling, has addressed a letter to the secretary of the local committee on the subject of the best costume for the statue, to which Mr. Montford says he has given a lot of thought. The question is whether the statesman should be represented in the robes of a Knight Grand Cross of the Bath, as shown in the model, or simply in a frock coat. Mr. Montford thinks it impossible to make a frock-coated statue look so well as one in robes, and he thinks that if Stirling wants to have the national statue, and take the opportunity to keep for itself that which some day Edinburg or Glasgow may want, robes will have to be used. A meeting of the committee is to be held shortly to settle this point.

THE EVOLUTION OF THE DWELLING-HOUSE AND SOME REFLECTIONS THEREON.

(Continued from last week.)

The next form which the cottages and humble houses took was rectangular. In whatever parts of the country we look for examples of the smaller domestic house or cottage, we find an old method of construction prevails—namely, the erection in "bays," the simplest form of house being of one "bay." The principle of construction of the house of one "bay" was simple. Two pairs of bent trees, in form resembling the lancet-shaped arch of a Gothic church, were set up on the ground, and united at their tops by a ridge tree. The framework so set up was strengthened by two tie beams and four wind braces, and was fastened together by wooden pegs. The bent trees or arches were placed at a distance of some 16 feet apart, and the space between them was known as a "bay." Thus the "bay" formed a sort of unit of construction, for the building of one "bay" might be increased indefinitely by adding other "bays." The couples or pairs of bent trees were originally known as "forks," also as "gavels," or "gavelforks," but this latter term can only be strictly applied to the "forks" at the two ends of the building, which thus took the name of "the gable end." The forks were also known by other names, and now familiarly as "croks," "crucks," or "crutches." The oldest buildings of this type had only the ground floor, the walls were of wattlework, and covered with a rough plastering of mud and clay; the door was placed in one of the gable ends. An excellent example of this type of dwelling (cruck) exists at Scrivelsby, near Horncastle, Lincolnshire, and is known as the "Tea-Pot Hall," and is thus described by Addy in his "Evolution of the English House":—"It is built of two pairs of straight 'crucks,' which extend from the four corners of the house to the ridge-tree, and which support the ridge-tree, the framework being further strengthened by the addition of wind braces. The length, breadth, and height of the building is 19 feet respectively. The doorway is in the south gable end, and a small 'outshot' building, whose roof is considerably below that of the main building, projects from the opposite gable end. This 'outshot,' built of wood and with the house, contains the buttery and scullery, the buttery being, as is usually the case, in the north-west. From the floor of the 'outshot' a ladder goes up to the bedroom above. The walls, which are about six inches thick, are composed of wooden studs, with twigs or branches of trees interwoven, the whole being overlaid with mud and plaster. The sides are thatched with straw down to a point a little below the bedroom floor. From this point grey slates extend to the ground. The roof of the 'outshot' is rounded, and thatched with straw. The fireplace, which may be in its original position, is of brick, and it, as well as the chimney, is of more recent date than the rest of the house."

In order to get more accommodation, the next step was to make the walls straight, still retaining the original form of construction. This was obtained by carrying the ends of the tie-beams, which braced the "crucks" together, outward, so making the tie-beam equal in length to the base of the arch formed by the leaning trees or pieces of timber known as the "crucks." Then at the ends or upon the tops of these extended tie-beams were placed long beams, known as "pans" in Yorkshire and "pons" in Lancashire (the original of the timber now known as the wall plate), and then the rafters are laid between the "pans" and ridge tree. Lastly, a side wall is built up from the ground to the "pan," so that the "pan" rests on, and is carried on, the top of this wall, the walls being built after the wooden framework had been constructed.

The change from the ancient way of supporting the roof by pairs of arches springing from the ground, to the modern way of supporting it by "pairs of principals," was made very slowly indeed. To us, the modern roof, resting on upright walls of stone or brick, seems too simple a thing to regard as a triumph of human skill, but such it was.

A house consisting of one "bay" would be but a poor place for a family to live in, but this form of construction permitted of its size being increased by the addition of more "bays" to either end, or by the building of additional rooms at the ends or sides. When the latter form was adopted, the additional rooms were known as "outshots," or "outshuts," this name being still recognised in the "outshot" kitchen (or outhouse) often built at the back of a small dwelling.

The first means adopted for obtaining access to the upper rooms from the ground floor was by the simple rung ladder, which is still the method used in many country cottages. An advance on this was made by enclosing a space on the ground floor from the floor up to the ceiling, and by fixing inside this enclosure a series of solid blocks, triangular in shape, fixed so as to be almost perpendicular, and arranged like the rungs of a ladder; the lowest step was usually of stone, the first four or five perpendicular, and the remainder slightly inclined towards the top. This method may fairly be described as one midway between the original rung ladder and the present staircase.

In the early, cone-shaped house there was neither chimney nor window. At a little later period, in the wooden homes of the Gauls and Britons, an opening was left at the top for the admission of light and the emission of smoke, an open hearth stood in the middle of the floor, on which the fire would be laid, and, having regard to the central position of this hearth, it is most likely that the fireplace of the house of the middle ages did not adjoin an outer wall, as is usual now, but stood at some distance from the walls. It is not certain of just what materials the chimneys were constructed, possibly wicker-work made of rushes and covered with mud; but there is evidence that in the city of London chimneys were built of wood up to the 15th century, for Ordnances of the city of London in 1419 declared that "Henceforth no chimney shall be made unless it be of stone, tiles (bricks), or plaster, and not of wood, under a penalty of being pulled down." Windows now used for the admission of light were in the early days known as "wind eyes" or "mind holes," their object being more for the admission of air than light. The costliness of glass, and the consequent limitation of its use, prevented, to a great extent, windows being made of sufficient size. In the 16th century, however, when it became cheap in comparison with earlier times, a great impetus was given to its use, and it became the fashion in large houses to make the windows as large and numerous as possible.

I cannot, in the time at my disposal, carry this further. It is an easy matter to see how the modern cottage is but an extension and elaboration of the primitive dwelling I have traced, and that but an extension of the same principles is used in the building of the town house, the manor house, and the public building.

In order to measure the progress made by man in the art of building, one has only to compare the cave dwelling with the cathedral. The foundations of the long chain of progress thus seen were laid by the men mentioned at the beginning of my remarks, who tilled the ground and watched the flocks. It was they who originated and maintained the forms which, for such long ages, have prevailed, not only in the humble cottage, but also in the stately halls and palaces.

Inseparable from the dwelling is the dweller, and hereafter, as, in the earlier portion of my paper devoted to the evolution of the cottage or small dwelling, my remarks will apply principally to the dwellings of those in the humbler sphere of life—*i.e.*, the working classes; those of the higher sphere can, by reason of their position in life, look after themselves, neither needing the help of the philanthropist nor the State in planning or choosing their dwellings.

(To be continued.)

The Glasgow Provincial Committee for the Training of Teachers have decided to acquire the Woodend site on the Jordanhill estate for the proposed Training College. The site extends to forty acres, with an option of a further ten acres.

The Carnegie Dunfermline Trustees have decided to proceed with the erection of premises for school clinics and college class-rooms in accordance with a plan prepared by Mr. David Barclay, F.R.I.B.A., Glasgow. It is estimated that the cost will be about £16,000.

The Whitstable Urban District Council invite engineers to submit schemes for the treatment and purification of the sewage of the urban district of Whitstable, together with the estimated costs of such schemes, the purification works to be situated in the district, and the scheme to include the diversion of the sewage from the Stream Dyke.

The trustees and governors of the Richard Murray Commemoration and Memorial Hospital at a meeting held at Benfieldside decided to proceed with the work for the erection of the hospital forthwith. Mr. Jos. Eltringham, Blackhill, and Mr. Thos. H. Murray, Consett, architects, were asked to prepare the necessary plans and specifications.

The partnership between Messrs. C. R. Field & W. Glazier, auctioneers, surveyors, &c., Southwark, S.E., has been dissolved by mutual consent. Mr. C. Roland Field (Fellow of the Surveyors' Institution) will carry on the business at 54 Borough High Street, S.E., under the name of Field & Sons. Mr. William Glazier's future address will be 17 Pall Mall East, S.W.

UNIVERSITY COLLEGE COURSE IN HEATING AND VENTILATION.

The want of instruction in the higher branches of heating and ventilation has been felt in this country for many years by architects and heating engineers. The result of the want has been that these allied sciences have not made the progress in this country which has been observable in some Continental countries, notably Germany.

The Institution of Heating and Ventilating Engineers for some considerable time has been endeavouring to promote the interests of the scientific study of these branches of engineering in some of the centres for higher technical education in this country. With the help of a grant from the London County Council, a lectureship has been instituted at University College, London. A laboratory has been equipped, and it is hoped that the work will receive the whole-hearted support of those interested. Mr. A. H. Barker, B.A., B.Sc. (Lond.), Whitworth Scholar, has been appointed the first lecturer.

There are many questions in heating and ventilation which have not been investigated, and very little knowledge is available on some points, and the work to be done at University College will therefore be of very great value to the community.

Germany has long been provided with very elaborate and extensive buildings for the study of this subject, the funds having been provided by the Imperial Government; some of the greatest living authorities have been for many years solely engaged in investigating the many obscure matters connected with heating and ventilating.

The Government of this country is not in such close touch with the requirements of technical education as the Government of Germany is, and in consequence this important branch of engineering has hitherto suffered severely from neglect.

The thanks of the community are therefore due to the London County Council for their public-spirited action. It is hoped that the success of the department and the interest shown in it by the heating engineers will justify the Council in aiding the institution of this lectureship.

The session is to be opened by a series of public lectures at University College, in which the present position of the knowledge of this science will be discussed, and reference made to the paths along which development is to be expected. This is a very important aspect of the matter for engineers and architects who wish to be progressive.

A complete course of instruction, designed for architects and heating engineers, has been provided. The arrangements will include:—(1) A course of six public lectures on Tuesdays at 5 p.m., beginning on October 17, especially addressed to architects; (2) a course of lectures on the application of scientific principles to this branch of engineering in the second term, on Tuesdays, at 5 p.m.; (3) drawing office work, comprising courses of practical instruction in designing and calculating installations; (4) instruction in the laboratory, which has been fitted out so as to provide for research and means of testing and investigation.

For full particulars, including syllabus of lectures, application should be made to Mr. Walter W. Seton, M.A., Secretary, University College, London (Gower Street, W.C.).

TRADE NOTES.

Messrs. Frank Staines & Co., Ltd., domestic kitchen engineers, &c., who exhibited at the recent Building Exhibition at Olympia, have removed from 38 Buckingham Palace Road to 88 Victoria Street, S.W.

The use of the "Ceresit" waterproofing medium for concrete, stone and brick buildings was successfully demonstrated last year at the Brussels Exhibition, where the highest award was secured. It is interesting to note that a similar success has been achieved at the Turin Exhibition running during this year, and that the Grand Prix has there been awarded to "Ceresit."

The Derwent Joint Smallpox Hospital, Cumberland, is being supplied with Shorland's patent exhaust roof ventilators and special inlet ventilators by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester. The new electric theatre is being fitted with Shorland's patent exhaust roof ventilators, and the New Hospital, Atherstone, is to be equipped with Shorland's warm air ventilating patent Manchester stoves.

The Sun Life Office are able to show a progressively satisfactory report for each year since 1900. Last year, for example, more than five thousand new policies were issued, assuring upwards of £2,000,000—about twice as much as in 1900. This expansion is largely attributed to the introduction of Life Assurance Without Medical Examination, which at the time came in for considerable criticism. Another of the causes of prosperity is the dissemination of specially written literature (notably the sixty-page booklet entitled "Scientific Saving") explaining the principles and practice of Life Assurance in general and the methods of the Sun Office in particular. A new edition of "Scientific Saving" may be obtained post free on application to the General Manager, Sun Life Office, 63 Threadneedle Street, E.C.

One of the interesting features at the exhibition held last week at Derby in connection with the annual convention of the National Association of Master House-Painters and Decorators was the first public demonstration by Messrs. Thos. Parsons & Sons, 8 Endell Street, W.C., of their "Trans-ol" transfer process. For this the designs are executed in reverse upon a special paper in successive layers of oil colour. The paper is attached to the wall by a thin coat of a special paste, and carefully pressed down. When the paste has become almost dry the back of the "Trans-ol," after being thoroughly damped, is peeled off, leaving the pattern firmly adhering to the ground. Instead of the lifelessness of an ordinary stencilled pattern the effect of the transfer is practically the same as if hand-painted. In price the "Trans-ols" are approximately equal to a high-class wall-paper frieze; in durability they are far superior, as the decoration can be washed without fear, provided that the ground is itself washable. "Trans-ols" may be applied either to glossy or "flat" surfaces. The most suitable of all grounds, however, is Messrs. Parsons's "Endelflat" enamel, this being perfectly washable, and possessing the fineness of texture requisite to show best the delicacy of the designs. Further, the choice of surface is not limited, since "Endelflat" is equally applicable to a wooden or plaster partition wall.

VARIETIES.

The Stretford Urban District Council give notice of their intention to provide an elementary school for about 400 children.

The Lancaster Town Council have received sanction to borrow £2,000 for the purchase of a site for the Girls' Secondary School and £12,000 for the building.

Messrs. Newman & Newman, who have for many years carried on their practice at 31 Tooley Street, S.E., have removed their offices to St. Thomas's Chambers, 24 Railway Approach, London Bridge, S.E.

Mr. Roland Clarkson, assistant surveyor to the Jarrow Corporation, has been appointed surveyor to the South Shields Rural District Council out of 170 applicants. The salary is £200 per annum.

The Essex County Council are advertising for six whole-time officials to work in the office of the County Architect at Chelmsford. Full particulars may be seen in our advertisement columns.

The Windsor Rural District Council are about to ask the sanction of the Local Government Board for a loan of £55,000 required to carry out the Sunninghill and Sunningdale sewerage scheme.

The Manchester City Council on Wednesday last approved the city architect's plans for the provision of dwellings for 450 people, at a moderate rental, on the Barrack Street site, Hulme. The proposed houses are to be in the form of cottage flats. Application will be made to the Local Government Board for sanction to borrow £16,105 to carry out the scheme.

Messrs. Bell will publish next week the History of Renaissance French Architecture on which Mr. Reginald Blomfield, A.R.A., has been engaged for many years. It will be a companion to the same author's work on English Renaissance. The book will be issued in two volumes, and will be profusely illustrated from drawings by the author, scarce engravings, and other sources.

The Superior Jury of the Festival of Empire have issued a further list of diplomas in respect of the exhibits at the Crystal Palace. In the Arts and Crafts Section, Grand Prix have been awarded to Chubb & Son's Lock and Safe Co., Ltd., 128 Queen Victoria Street, E.C.; Messrs. Gibson & Sons, Ltd., Albany Potteries, Burslem, and Mr. W. Ault, Swadlincote, near Burton-on-Trent (pottery and faïence). Among the gold medals awarded are those to Hofler, Ltd., Soho Square, W., for architectural metalwork; Quadruplex, Ltd., 88 Goswell Road, E.C., for office furniture; and Houghtons, Ltd., for the Ensignette Camera.

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NOTICE TO ADVERTISERS.

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

he Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Bolton.—The Lancashire and Cheshire Miners' Federation invite architects in practice on their own account within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1s. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton.

Bristol.—Oct. 31.—The Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

Hastings.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1s. deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

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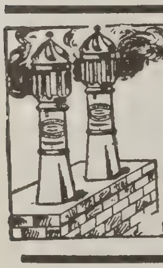

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London.—Oct. 31.—The Metropolitan Borough Council of Marylebone invite designs for new municipal buildings in arylebone Road. Deposit £1 1s., which will be refunded receipt of a bona-fide design or return of conditions within month of receipt. All particulars from Mr. James lson, Town Clerk, Town Hall, Marylebone Lane, Oxford eet, W.

Rochdale.—The Board of Management of the Rochdale irmary invite architects practising in Rochdale prior to nuary 1, 1911, to submit plans, designs, and estimates extending the present buildings. Conditions of competin, with other information, together with instructions to hitects, can be obtained on application to the secretary. assessor has been appointed by the committee. Mr. T. vyn Kershaw, secretary, Secretary's Office, the Infirmary, chdale.

Scotland.—The Town Council of Armadale invite archits to submit plans for a public hall and offices, costing not re than £2,500, completed, painted, and furnished. A emium of £15 for the selected design will be paid on its ng ascertained that the design can be carried out within cost stated, and £10 will be paid for the next. The archit submitting the successful design will be entrusted with work at the usual professional remuneration. Mr. Wm. esar, Town Clerk, Armadale.

Uruguay.—Jan. 30.—The Ministry of Public Works ite competitive plans for a town-improvement scheme for a new Government Palace at Monte Video. emiums of about £1,060, £640, and £425 are offered for former scheme, and about £2,215 and £850 for the latter. signs for the Government Palace must be submitted by n. 29, 1912, and for the town-improvement scheme by n. 30. A statement of the conditions of the competition Spanish) may be seen by British firms at the Commercial elligence Branch of the Board of Trade, 73 Basinghall eet, London, E.C.

Wales.—The Cardiff Education Committee invite designs estimates in competition for a technical institute proed to be erected in Cathays Park. Mr. J. S. Gibson, hitect, will act as assessor. Full particulars will be sent architects on application, accompanied by a deposit of 2s., which will be returned to all architects submitting a-fide designs or who return the conditions within six ks. Mr. J. Jackson, director of education, Education ices, City Hall, Cardiff.

CONTRACTS OPEN.

Bingley.—Oct. 19.—For the following works:—Bingley: llingworth Council School, alterations and additions ilder, joiner, slater, plumber, plasterer, and painter), for West Riding Education Committee. The Education chitect, County Hall, Wakefield. Send £1 deposit to the st Riding Treasurer, County Hall, Wakefield.

Brigg.—Oct. 21.—For building extensions to the school use (including new dormitories, masters' room, day room, atories, bathrooms, &c.), for the Governors of Brigg Gramr School. (Mr. G. H. Allison, architect, Grimsby.) nd £1 1s. to Mr. F. C. Hett, clerk to the Governors, Bigby Street, Brigg.

Bromborough.—Oct. 28.—For the erection of Council ces. Deposit £1 1s. Mr. J. Clarke, surveyor, 34 Castle eet, Liverpool.

Chorley.—Oct. 19.—For the erection of laundry builds off Preston Road. Messrs. Jolly & Buckley, architects, gh Street, Chorley.

Churwell (Yorks).—Oct. 21.—For the mason's, ner's, plumber's, slater's, ironfounder's, and patent zier's works required in erection of shed premises at Lane le Mills. Mr. T. A. Buttery, L.R.I.B.A., architect, een Street, Morley, and 1 Basinghall Square, Leeds.

Denton (Lancs.).—Oct. 19.—For erection of an elemeny school at Denton (Duke Street), for 778 scholars. Deit £2. Mr. H. Littler, county architect, 16 Ribblesdale ace, Preston.

Dartford.—Nov. 6.—For the erection of Council school accommodate 300 scholars at Dartford, Maypole Estate. nd in names and £1 deposit by Oct. 21 to Mr. F. W. ok, secretary to the Kent Education Committee, Caxton use, Westminster, S.W.

Dukinfield.—Oct. 25.—For the construction of extenns of the sewage works at Bradley Hurst, Dukinfield, the Stalybridge and Dukinfield Joint Sewage Board—.: (1) Construction of detritus tanks; (2) additional tling tanks; (3) storm water tanks; (4) humus tanks; (5) percolating filters; (6) duplication of portion of main outfall sewer; (7) storm-water overflow and other appurtenant works. Deposit £2 2s. Mr. J. P. Wilkinson, M.I.C.E., 301 Cathedral Street, Manchester.

Edinburgh.—Oct. 17.—For the extension (second portion) of the laboratory building at the Edinburgh Royal Botanic Gardens (whole tenders only), for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1s. H.M. Office of Works, 3 Parliament Square, Edinburgh.

Erith.—Oct. 31.—The London County Council invites tenders for the construction of an additional engine-house, &c., at the Southern Outfall Works, Crossness, in the Urban District of Erith, Kent. Send £10 deposit to the Cashier of the Council. Mr. Maurice Fitzmaurice, C.M.G., the Chief Engineer of the Council, the County Hall, Spring Gardens, S.W.

Failsworth.—Oct. 19.—For erection of an elementary school at Failsworth (Minor Street), near Manchester, for 1,000 scholars. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Felling-on-Tyne.—Oct 27.—For erecting a superintendent's house and stable, &c., at the County Police Station. Mr. W. Crozier, A.M.Inst.C.E., county architect and surveyor, Shire Hall, Durham.

Harrogate.—Oct. 16.—For erection and equipment of bath-rooms, w.c.s and mess-room at Gas Works, Ripon Road. Mr. H. Wilkinson, secretary, Gas Offices, James Street, Harrogate.

Horbury (Yorks).—Oct. 19.—The West Riding Education Committee invite whole or separate tenders for the following works—viz., builder, joiner, slater, plumber, plasterer, painter, ironfounder, and smith—in connection with the Horbury new school. The Education Architect, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Hull.—Oct. 20.—For erection of stables, together with loose boxes, hay loft, mess-room, and residence, in Chapman Street Yard, for the Corporation. Deposit £2 2s. Mr. J. H. Hirst, city architect, Town Hall, Hull.

Ireland.—Oct. 16.—For erection of a Carnegie Library and Technical Institute opposite the Town Hall, Rathmines Road, for the Rathmines Urban District Council. Deposit £2 2s. Messrs. Batchelor & Hicks, architects, 86 Merrion Square. Messrs. Patterson & Kempster, quantity surveyors, 95 Lower Leeson Street, Dublin.

Ireland.—Oct. 18.—For building forty-five cottages, for the Kinsale Rural District Council. Mr. J. Murphy, clerk.

Ireland.—Oct. 21.—For building a dwelling-house at Newcastle, County Down. Messrs. E. & J. Byrne, architects, 4 Waring Street, Belfast.

Ireland.—Nov. 4.—For the erection of a Presbyterian Church in Waterford. Mr. T. Scully, B.A.,B.E., architect, Waterford. Deposit £2 2s. Mr. A. F. Torrie, secretary of Committee, "Rosemount," Waterford.

Isle of Wight.—Oct. 18.—For underpinning, &c., at the workhouse, for the Guardians of the Isle of Wight Union, Newport. Mr. A. G. Harrison, clerk, 30 Pyle Street, Newport, I.W.

King's Lynn.—Nov. 2.—For alterations at the isolation ward of the workhouse. Messrs. Jarvis & Sons, architects, Lynn.

Leeds.—For the bricklayer's, mason's, carpenter's and joiner's, plumber's and glazier's, iron and steel work, plasterer's and painter's work (in separate trades) required in alteration of lock-up shop and warehouse premises in New York Street. Deposit £1 1s. Mosleys, estate agents, 6 Wormald Row, Leeds.

Leeds.—For the various works required in erection of the North-East Ward Conservative Institute, Harehills Lane. Mr. G. F. Bowman, architect, 5 Greek Street, Leeds.

Letchworth.—Oct. 19.—For erection and completion of a County Council school at Letchworth Garden City, accommodation 388. Deposit £2 2s. Mr. Urban A. Smith, county surveyor, Hatfield.

Liverpool.—Oct. 21.—For the erection of an operating department at the Workhouse, Brownlow Hill. Send in names by Oct. 21 to Messrs. Haig & Thompson, architects, 2 Exchange Street E., Liverpool.

London.—Oct. 19.—For exterior painting and repairing works at their workhouse, St. Leonard Street, Bromley-by-Bow, E., for the Guardians of Stepney Union. Deposit £5 5s. Mr. T. G. Stacey, clerk, Guardians' Office, Barnes Street, Stepney, E.

London.—Oct 19.—For rebuilding certain parapet and other walls at the Christchurch Workhouse, Gray Street, Waterloo Road, S.E., for the Guardians of Southwark

Union. Mr. A. Saxon Snell, F.R.I.B.A., 22 Southampton Buildings, Chancery Lane, W.C.

Luton.—Oct. 23.—For erection of a new block of buildings for women's infirmary and nurses' home at the workhouse. Deposit £1 1*s.* Messrs. Gotch & Saunders, architects, Kettering.

Macclesfield.—Oct. 17.—For alterations to the existing technical school premises, and the erection of additional premises for a cookery centre and workshops on a site adjoining in Old Park Lane. Deposit £2 2*s.* Mr. W. Grieves, Town Hall, Macclesfield.

Manchester.—Oct. 21.—For erection of the George Leigh Street Municipal school, Ancoats. Deposit £2 2*s.* The Education Offices, Deansgate, Manchester.

Oldham.—Oct. 25.—For the builders' work required in erection and completion of a number of lock-up shops adjoining the Victoria Market Hall. The Borough Surveyor's Office.

Plymouth.—Oct. 31.—For the reconstruction of a portion of the East Quay at the Great Western Docks. The Great Western Railway Engineer, North Road Station, Plymouth.

Ponteland.—Oct. 17.—For erection of a new station, stationmaster's house, and cottages at Darras Hall, near Ponteland, Newcastle-on-Tyne, for the North-Eastern Railway Co. Mr. W. Bell, the company's architect, Central Station, Newcastle-on-Tyne.

Ramsey.—Oct. 14.—For erection of a bakery at Ramsey (Hunts), for the Peterborough Co-operative Society. Send in names and £1 1*s.* deposit by Oct. 14 to Messrs. Townsend & Fordham, architects, Cross Street, Peterborough.

Rochdale.—Oct. 18.—For erection of a goods shed at Fishwick Street Goods Yard, Rochdale, for the Lancashire and Yorkshire Railway Co. The Engineer's Office, Hunt's Bank, Manchester.

Rochford.—Oct. 13.—For erection of nurses' home (for sixteen) and a babies' home (for thirty) at the workhouse. Send in names and £1 1*s.* deposit by Oct. 13 to Mr. Walter J. Wood, architect, 26 Alexandra Street, Southend-on-Sea.

Romford.—Oct. 27.—For execution of certain alterations to the Council offices. The Surveyor, Market Place, Romford.

Saltwood.—Oct. 16.—For the erection of new offices at the National Schools. Mr. A. C. Eddis, correspondent, Saltwood, Hythe, Kent.

Scotland.—Oct. 13.—For mason, carpenter, and slater works of extension at Central Auction Mart, New Maud, Aberdeen. Messrs. Walker & Duncan, C.E., architects, 3 Golden Square, Aberdeen.

Scotland.—For plaster and cement work for hospital to be erected at Cameron Bridge, for the Burgh of Buckhaven, Methil, and Innerleven. Deposit £1 1*s.* Mr. W. D. Telfer, burgh surveyor, Buckhaven.

Sherburn (Durham).—Oct. 17.—For erection of a County Council School for about 300 scholars. Mr. W. Rushworth, Shire Hall, Durham.

Shotley Bridge.—Oct. 18.—For proposed additions, alterations, &c., at the Derwent Flour Mill. Mr. J. J. Eltringham, architect and surveyor, Derwent Street, Blackhill.

Skelmanthorpe.—Oct. 20.—The West Riding Education Committee invite whole or separate tenders for the following works in connection with the Skelmanthorpe new infants' school, and special subjects centre—viz. builder, joiner, slater, plumber, plasterer, painter, and ironfounder and smith. The Education Architect, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Sowerby Bridge.—For the mason, joiner, plumber and glazier, plasterer and slater, iron merchant, and concretor works required in the re-erection of fireproof and other buildings at Asquith Bottom Dyeworks. Messrs. Horsfall & Sons, architects, 22a Commercial Street, Halifax.

Stockport.—Oct. 16.—For erection of a central library, for the Corporation. Deposit £2 2*s.* Messrs. Bradshaw & Gass, architects, 19 Silverwell Street, Bolton; or Messrs. Hewitt & Son, quantity surveyors, 33 Brazennose Street, Manchester, and 35 Great Underbank, Stockport.

Tredington.—Dec. 2.—For erection of an isolation hospital with outbuildings and for alterations and additions to the existing hospital at Tredington, near Tewkesbury. Deposit £1 1*s.* Mr. J. Villar, F.S.I., M.S.A., architect, 5 Essex Place, Cheltenham.

Tunbridge Wells.—Nov. 6.—For erection of a county school to accommodate 200 girls at Tunbridge Wells. Send in names and deposit £2 by Oct. 17 to Mr. F. W. Croo secretary, Caxton House, Westminster, S.W.

Tywardreath.—Oct. 31.—For erection of three far houses, three sets of farm buildings, alterations and adapt tions of existing buildings, and new walls and fences Lampetho Farm, Tywardreath, near Par, for the Sm Holdings Committee of the Cornwall County Council. T County Land Agent, Public Rooms, Truro.

Uxbridge.—Oct. 30.—For the necessary works in t erection of a public lavatory at the Market House. Mr. L. Eves, F.R.I.B.A., F.S.I., surveyor, 54 High Stre Uxbridge.

Uxbridge.—Oct. 23.—For supply of schemes and es mates for additional heating apparatus at the Joint H pital, Kingston Lane, Hillingbon, Uxbridge. Mr. Char Woodbridge, Clerk to the Joint Hospital Board, 38 Hi Street, Uxbridge.

Wales.—Oct. 17.—For erection of two new piggeries a certain repairs at Elm Farm, in the parish of Undy, for t Monmouthshire Small Holdings and Allotments Committ Mr. C. R. Harding, county land agent, County Coun Offices, Newport, Mon.

Wales.—Oct. 17.—For erection of isolation wards Aberystwyth, for the Corporation. Mr. Rees Jones, borou surveyor, Smithfield Road, Aberystwyth.

Wales.—Oct. 18.—For erection of a detached villa re dence at Radyr. Deposit £1 1*s.* Mr. W. H. D. Cap F.R.I.B.A., architect, Church Street, Cardiff.

Wales.—Oct. 23.—For the erection and completion of t semi-detached villas at Coytrahen, Tondu. Mr. F. Burnett, architect and surveyor, Tondu, Glam.

Wales.—Oct. 24.— For erection of 100 (or more) wor men's houses at Blackwood (Mon.) for the Oakdale Navig tion Colliery Co., Ltd. Mr. A. F. Webb, M.S.A., archite and surveyor, Tredegar Chambers, Blackwood.

Wales.—Oct. 25.—For erection of twenty-eight dwellin houses and premises at Ystalyfera and works connect therewith, together with the construction of a road, for t Pontardawe Rural District Council. Deposit £5. Mr. Morgan, engineer and surveyor, Council Offices, Po tardawe. The draft contract agreement can also be se at the same time. Applicants must deposit at the time inspection the sum of £5, which will be refunded on recei of a bona-fide tender, accompanied by the specificatio Sealed tenders, endorsed "Ystalyfera Houses," and a dressed to Mr. W. Lewis, clerk, must be delivered at t Council Offices, Pontardawe, by Oct. 25. The acceptance a tender will be subject to the Local Government Boa sanctioning the scheme, and to any modifications that t Board may request to the said plans and specifications.

Warwick.—Oct. 17.—For erection of a screen to t verandah of the diphtheria block at Heathcote Hospit Messrs. F. P. Trepess & Son, architects to the Board, Church Street, Warwick.

Whicham.—For the following alterations at Whicha School: Conversion of classroom into cloakrooms, wi lavatory fittings and drainage; conversion of earth clos into water closets, with sewage system, septic tank a filter, &c. The Head-Master, Whicham School, Cumb land.

Winchester.—Oct. 24.—For supply of materials a labour required in the erection of an elementary school the Danemark Estate. Send names and £2 2*s.* deposit Mr. A. H. Johnson, architect, Winchester.

Woodgate.—Oct. 24.—For the work of erecting a Coun school at Woodgate, in the parish of Northfield, ne Birmingham (Messrs. Crouch, Butler & Savage, arc tects, 39 Newhall Street, Birmingham). The school is accommodate 250 scholars. Deposit £1 1*s.* Mr. J. Moo secretary, Education Offices, King's Norton, near Birmin ham.

Worthing.—Oct. 17.—For erection of boundary wall a alteration to certain buildings on the south side of Ric mond Road, for the Town Council. The Borough Survey Municipal Offices, Worthing.

York.—Oct. 17.—For erection of central stores, &c., f hotels department at York, for the North-Eastern Railw Co. Mr. William Bell, the company's architect, at York.

Yorks.—Oct. 26.—The West Riding Small Holdings a Allotments Committee invite whole tenders for the followi works—viz.: (1) Repairs to Oakroyd Farm, Lower Dun forth, near Boroughbridge; (2) alterations and additio to farm at Upper Dunsforth. Send £1 1*s.* deposit to t West Riding Treasurer, County Hall, Wakefield. The We Riding Architect, Wakefield.

TENDERS.

BADBY.

For erection of a public elementary school at Badby, Northamptonshire. Mr. J. T. Blackwell, architect, Kettering.

Lewin & Son	£1,441	0	0
Adams & Son	1,375	0	0
Higgs	1,287	0	0
Green	1,287	0	0
Love & Co.	1,234	0	0
Higgins	1,217	0	0
Hickman & Sons	1,210	17	0
Archer & Sons	1,197	0	0
Beardsmore & West	1,188	0	0
Holland & Marks	1,179	17	0
Webster	1,175	0	0
Smith & Bunning, Kettering (*accepted*)	1,138	0	0

BECKENHAM.

For the erection of a pavilion, stable, &c., for the Three Banks Athletic Club. Messrs. Norfolk & Prior, architects, Catford Bridge.

Goddard	£1,970	0	0
Christmas	1,671	0	0
Copeland	1,480	0	0
Boughton	1,334	16	6
James Watt (*accepted*)	1,260	0	0

BIGGLESWADE.

For erection of a hall and Liberal Club premises in High Street. Mr. W. C. Owen-Jones, architect, Biggleswade.

Woodward	£3,950	0	0
Wrycroft & Son	2,999	0	0
Izzard	2,995	9	6
Haynes	2,698	0	0
Bailey & Co.	2,690	0	0
Allen & Sons	2,656	5	0
Redhouse & Son	2,599	0	0
Wright, Langford, Beds (*accepted*)	2,381	0	0

CHERTSEY (SURREY).

For erection of children's home at the Workhouse, for the Guardians.

Wallis & Davis	£1,482	0	0
Osman	1,388	17	0
J. W. L. Cox	1,374	0	0
Tribe	1,359	0	0
Wren	1,350	0	0
Allwork	1,337	5	1
Cheeseman & Son	1,320	0	0
Deacon	1,270	0	0
Beauchamp	1,267	0	0
Greenfield	1,250	0	0
Hampton	1,240	11	7
Foster	1,196	0	0
Ives	1,195	0	0
Horsell	1,191	0	0
Higgs	1,190	0	0
Drowley & Co.	1,189	0	0
Baily, Parkes & Goates	1,161	0	0
Knight & Sons	1,150	0	0
Gibson & Co.	1,144	0	0
Love & Co.	1,099	0	0

EAST GRINSTEAD.

For alterations to the Infirmary.

Lynn & Son	£298	10	0
C. & H. Rice	279	0	0
T. & G. Smith	275	11	0
Brooker Bros.	230	0	0
C. & H. Gasson (*accepted*)	224	0	0

LONDON.

For providing and laying a new floor over the first-class swimming bath at the Hoxton Baths, for the Shoreditch Borough Council.

Thomerson & Son	£475	0	0
Kerridge	392	0	0
Jarvis & Sons	368	0	0
Shaw	356	15	0
Galbraith Bros., Ltd. (*recommended*)	310	0	0

For rebuilding No. 24 Conduit Street, W. Mr. A. Blomfield Jackson, F.R.I.B.A., architect, 3 New Square, Lincoln's Inn, W.C.

Falkner & Sons	£5,223	0	0
Patman & Fotheringham, Ltd.	5,183	0	0
H. & E. Lea, Hammersmith (*recommended*)	5,099	0	0

LONDON—*continued*.

For the erection of two sanitary conveniences (above ground) at Mortlake, for the Barnes Urban District Council. Mr. G. B. Tomes, A.M.I.C.E., surveyor, High Street, Mortlake.

H. King & Sons	£646	0	0
Jarman & Co.	595	0	0
Stourbridge Glazed Brick and Fireclay Co.	570	0	0
F. W. Hampton	570	0	0
W. Lowe	536	0	0
R. T. Hughes & Co., Ltd., Mortlake, S.W. (*accepted*)	495	0	0

For an extension of factory at Leatherville, Colindale Avenue, Hendon, N.W. Messrs. Coleman & Holmes, architects, 5 Rosemont Terrace, High Road, North Finchley, N.

Price	£1,857	0	0
Roberts & Co.	1,796	0	0
McCormick & Sons, Ltd.	1,771	0	0
Bate Bros.	1,741	0	0
Kelland, Stoke Newington (*accepted*)	1,733	0	0
R. J. Smerdon	1,725	0	0

SCOTLAND.

For the erection of a public slaughterhouse at Carnoustie.

Accepted tenders.

Beath & Kay, engineers, Dundee, iron and steel work.
James Farquharson, plumber work.
Alex. M'Ritchie, Dundee, plaster work.
Alex. Hogg & Sons, Carnoustie, slater work and harling and cement work.
John Mundy, Glasgow, equipment.
A. & J. Ingram, Dundee, tile work.
Robert Crighton, Carnoustie, smith work.

SHARNFORD.

For erecting a brick and concrete bridge, for the Leicestershire County Council. Mr. S. Perkins Pick, engineer, Leicester.

Hickman	£996	6	0
Chamberlain	980	8	0
Moss & Sons	966	0	0
Stimpson & Rollston	946	0	0
Rourke	933	0	0
Palmer, Leicester (*accepted*)	930	0	0

THORNTON HOUGH.

For the construction of sewers and sewage disposal works, at Thornton Hough, Cheshire, for the Wirral Rural District Council. Messrs. Priest & Ellis, MM.I.C.E., engineers, Liverpool.

Harris	£4,050	0	0
Meikle	3,800	13	0
Warren	3,736	13	0
Jowett Bros.	3,623	19	11
Brebner & Co.	3,605	4	8
Price & Co.	3,496	14	11
Lee & Son, Higher Bebington (*accepted*)	3,197	0	0

WESTERHAM.

For erection of a cottage at the Westerham Hill pumping station, for the Metropolitan Water Board.

Lowe & Co.	£695	0	0
Marrable	660	0	0
F. & G. Foster	593	0	0
Durtnall & Sons	542	0	0
Gorham	498	0	0
Peddle (*recommended*)	480	0	0
Spinner	435	10	0

WALES.

For erection of two shops and house at Nantgarw, near Cardiff. Mr. W. D. Thomas, architect and surveyor, Porth.

Turner & Sons	£1,149	0	0
Rees & Co.	1,020	0	0
Williams	1,003	0	0
Evan Bros.	997	0	0
More & Elworthy	850	0	0
D. M. Isaac, Ynyshir (*accepted*)	828	0	0
Thomas	821	0	0

WALES—*continued.*

For erection of business premises fronting Cambridge Road, Newport, Mon. Messrs. E. Page & Lister, architects, Newport, Mon.

Collard & Son	£1,246 0 0
Saunders	1,223 0 0
Phillips, Clarke & Co.	1,210 0 0
Leadbeter & Co.	1,200 0 0
Shopland	1,197 0 0
Dean	1,177 0 0
Brownscomb & Son	1,150 0 0
Williams	1,139 0 0
Moon	1,119 0 0
Jerrett	1,100 0 0
Jenkyn	1,100 0 0
Kirby & Westacott	1,100 0 0
Thomas & Son	1,093 0 0
Herbert & Co.	1,080 0 0
F. Leadbeter	1,078 0 0
Reed, Newport (*accepted*)	1,043 0 0

GLASGOW INSTITUTE OF MEASURERS.

The thirty-first annual meeting of the Glasgow Institute of Measurers was held on the 4th inst. in the Christian Institute, Mr. Anthony Purdie, president, in the chair. The report of the council for the past year was submitted. It stated that the membership was 81, besides one honorary member and six associates. It was reported that a petition had been lodged with the Privy Council for the grant of a Royal Charter in favour of the proposed Society of Ordained Surveyors in Scotland, and that it was expected the Privy Council would deal with the matter shortly. A grant of £2 2*s.* had again been made to the Technical College for prizes in the classes of building construction. The treasurer's statement showed the funds to amount to £739 8*s.* 3*d.* Office-bearers for the ensuing year were elected as follows:—President, Mr. Archibald B. Watson; vice-president, Mr. John H. Allan; secretary and treasurer, Mr. William Johnstone, B.L., 150 St. Vincent Street; auditors of professional accounts, Messrs. James Smellie and Anthony Purdie; council, Messrs. John Baxter, Farquhar Matheson, Archibald Anderson, John S. Stewart, Anthony Purdie, George B. Walker, James P. Dansken, and William Howatt.

A company has, it is understood, been formed under the title of "The Blackburn Mill-Building Company," with a registered capital of £25,000, for the erection of a mill at Hastonlee Farm, near Blackburn.

The Foreshore Committee of Kirkcaldy Town Council have received a report from their engineer regarding the cost of a sea wall along the foreshore. Two schemes were submitted, one to cost £21,692, and the other £35,052.

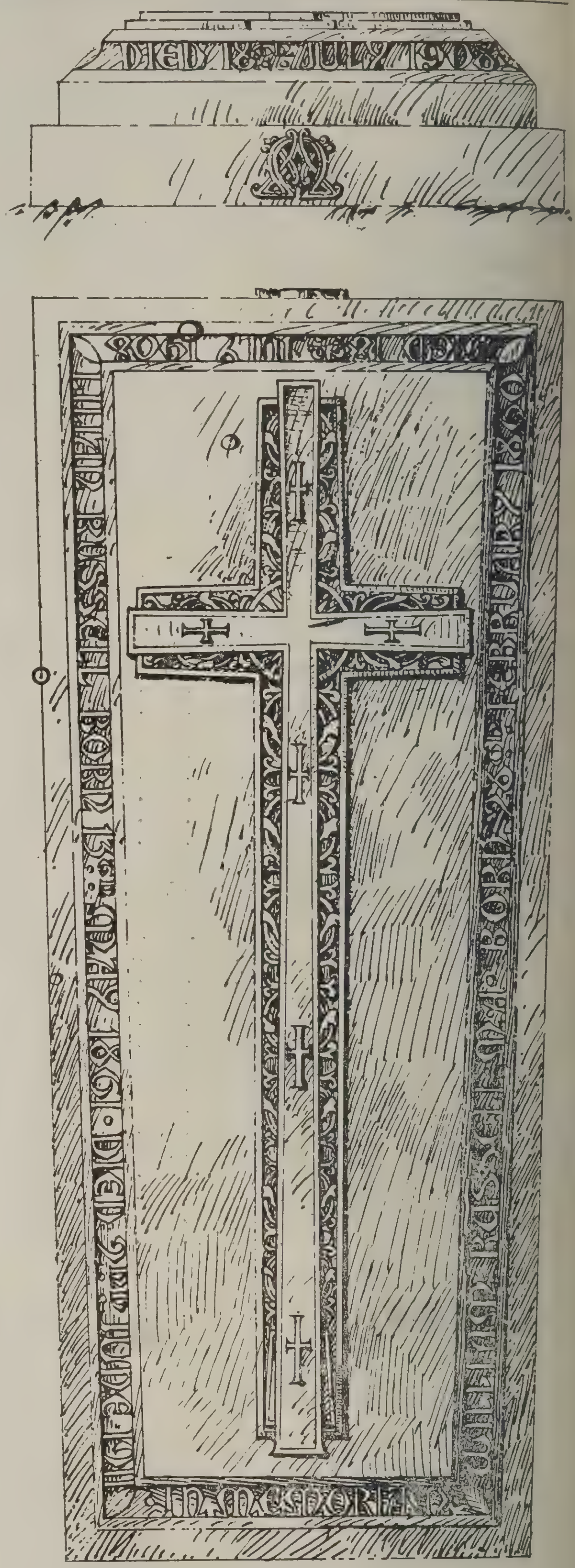
The Durham County Council and the Chester-le-Street Rural and Urban District Councils have arranged to erect a new main road bridge over the Wear between Chester-le-Street and Lumley. The total cost will be £17,726 15*s.*

The York Board of Guardians are recommended to apply for a loan of £14,294, being the estimated cost of the proposed alterations and extensions at the workhouse. The Local Government Board have already approved of the plans.

The Nelson Town Council has received sanction from the Local Government Board to borrow £6,000 for the purchase of the Marsden Hall and estate. The Hall, which for over forty years served as a private lunatic asylum, will be converted into a museum and art gallery. The wooded grounds of 44 acres will be laid out as a public park.

The question of the pulling down and rebuilding of the Hull Town Hall was recently discussed by the Corporation Property Committee. It has been decided to rebuild on a scheme to harmonise with the Law Courts. It was reported that Messrs. Quibell, Son & Greenwood had submitted an estimate of £25,378 for the work, and the Town Clerk was authorised to enter into a contract at this price.

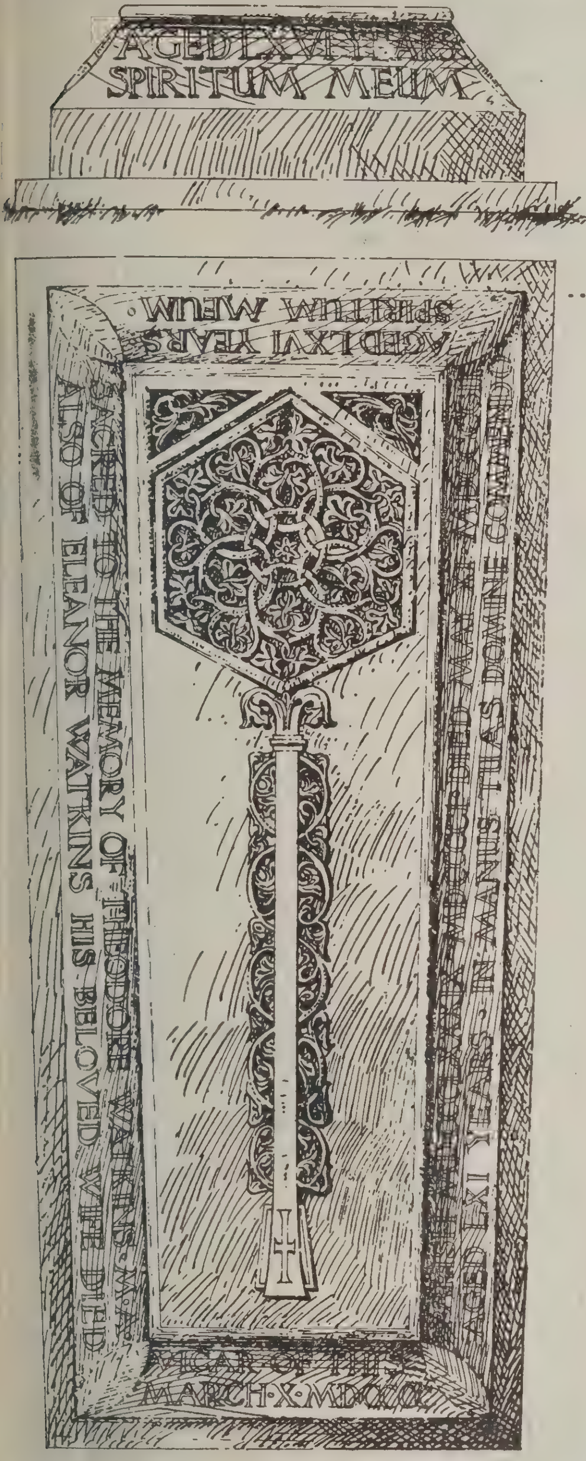
A bronze tablet has been erected at Exeter on the site of the old south gate, which was demolished 92 years ago. The tablet stands on a granite pedestal at the wall fronting Holy Trinity Churchyard, and bears the following inscription:—"Site of south gate; King Henry VI. here entered the city; 16th July, 1452; for centuries a prison; demolished 1819." The tablet has been erected by the Exeter Chamber of Commerce, who were also responsible for placing memorials at the sites of other gates in the city.



Sepulchral Slab designed by Mr. A. Borrowdale for Messrs. Borrowdale Bros., Sunderland.

Mr. W. T. Lockwood, architect, Chester, has prepared plans, after consultation with Mr. Paul Waterhouse, M.A., for the proposed reconstruction and enlargement of Chester Infirmary at an estimated cost of about £25,000. Half that amount has been received from a single donor.

The foundation stone has been laid of the extensions of the Applied Science Department of Sheffield University. The expenditure now proposed on land, buildings, and fittings is £37,848. The architects are Messrs. Gibbs, Flockton & Teather, of Sheffield.


AGED LXVI YEARS
SPIRITUM MEUM
SACRED TO THE MEMORY OF THEODORE WATKINS M.A.
ALSO OF ELEANOR WATKINS HIS BELOVED WIFE DIED
VICAR OF THIS
MARCH X MDCCC

pulchral Slab designed by Mr. A. Borrowdale for Messrs. Borrowdale Bros., Sunderland.

Messrs. Gordon & Gunton, architects, Finsbury ouse, London, E.C., have prepared plans for the erection Bishop Auckland of a new church and Sunday Schools. ie plans, which have been approved by the trustees of the o local Wesleyan bodies, are estimated to cost £12,000.

The Bradford Corporation Sewerage Committee decided Tuesday that plans and specifications for the construction a tunnel 5,124 yards long to convey effluent from Frizingll to the new sewage works at Esholt Valley should be mpleted. The work, which is expected to cost £170,000, ill be commenced early next year.

The Health and Sanitary Committee of the Gateshead wn Council have been considering the question of providing rther permanent means of disposal of town refuse, in ldition to that already afforded by the Redheugh refuse aith. The committee report that they are satisfied that e most efficient and economical method was by bringing e refuse to a ferro-concrete staith, as at Redheugh, and ence conveying it out to set. The committee have selected r the purpose a site extending from High Level Road to e river Tyne. A complete scheme will shortly be presented.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

Bedfordshire.

Luton.—Workhouse Infirmary alterations (£5,700).

Buckinghamshire.

Slough.—Parish Church: west end completion, also tower and spire (£6,000).

Cheshire.

Alderley, Nether.—Council School: alterations.

Birkenhead.—Council School, Temple Road. Mr. W. H. Forde, Ltd., contractor (£13,786).

Chester.—Infirmary extension and renovation (£21,000).

Marple.—Business premises for Compstall Co-operative Industrial Society, Ltd. Mr. F. E. L. Harris, A.R.I.B.A. (of Manchester), architect.

Stoak.—Parish Church restoration.

Cornwall.

Falmouth.—House opposite Gyllyngdune Gardens.

Newquay.—Pavilion (for 750 persons) on the Promenade. Mr. J. Ennor, jun., Council surveyor.

Cumberland.

Maryport.—Post office, High Street.

Penrith.—London City and Midland Bank premises, Market Square. Messrs. Nicholson & Sons (of Leeds), contractors.

Waverton.—House for Mrs. Fishwick.

Derbyshire.

Lunatic Asylum for 800 patients (£240,000).

Ilkeston.—School, Bumerby Street (£3,600).

Devon.

Newton Abbot.—Secondary school.

Durham.

Felling-on-Tyne.—County Police Station. Mr. W. Crozier, A.M.Inst.C.E. (of Durham), county architect.

Wearside.—Queen's Hotel alterations.

Essex.

Braintree.—Five houses, Cressing and Grenville Roads.
Picture Palace, Fairfield Road.
Workshops, New Street.

Romford.—Council Offices: alterations. Mr. T. Turvey, Council surveyor.

Springfield.—House. Messrs. C. & W. H. Pertwee (of Chelmsford), architects.

Hampshire.

Aldershot.—Royal Pavilion: additions and re-building (£6,000). Messrs. Caesar Brothers (of Hale), contractors.

Alverstoke.—House for Captain Durmaze. Messrs. Gale & Son (of Lyndhurst), contractors.

Winchester.—Council School (£4,800).

Hertfordshire.

Watford.—St. Michael's Church.

Kent.

Canterbury.—Church of St. George the Martyr: new organ and increased vestry accommodation (£235).

Chipstead.—Rock House: additions and alterations for the Sevenoaks Board of Guardians. Mr. W. J. Zealey (of Sevenoaks), contractor (£630).

Elham.—Nurses' quarters at the Workhouse Infirmary (£5,200). Mr. Bowles, architect.

Erith.—Municipal Offices.

Platt.—Church of England infants' school.

Sidcup.—Fire Brigade Station. Mr. J. W. Ellingham (of Dartford), contractor (£980).

Lancashire.

Lancaster.—Council School (£12,900).

Rumworth, New.—Six houses, Willows Lane.

Leicestershire.

Leicester.—Presbyterian Chapel.

Lincolnshire.

Brigg.—Grammar School extensions. Mr. G. H. Allison (of Grimsby), architect.

Lincoln.—Three houses, Burton and Massey Roads.
Fourteen houses in Frederick, Kingsley, Peel and Scorer Streets.
House, Charles Street West.
Altering old cottages for Mission Room, 3 and 4 St. Nicholas Square.
Gymnasium, St. Hugh's Home, Newport.

Sleaford.—Church Hall (£650).

MIDDLESEX.
Brentford.—Workhouse Infirmary extensions for children's infectious cases.
Workhouse Schools for babies and little boys.
Hendon.—Mortuary (£800).

MONMOUTHSHIRE.
Newport.—The "Anchor" Brewery: extensions to Bottling Stores and Stables. Messrs. Swalwell & Havard, architects.

NORTHAMPTONSHIRE.
Creston.—Tuberculosis Sanatorium enlargement (Edward VII. Memorial).
Rothwell.—Special instruction centre (£2,500).
Whiston.—Mission Room.

NORTHUMBERLAND.
Newcastle.—Workhouse piggeries (28 styes and 5 stalls) (£500).

SHROPSHIRE.
Shifnal.—National Schools enlargement.

SOMERSET.
Pitminster.—Council Elementary School.
Bradford-on-Tone. — Village Hall, Messrs. Samson, F.R.I.B.A., & Cottam, A.R.I.B.A. (of Taunton), architects.

STAFFORDSHIRE.
Audley Halmerend.—Council School.
Cannock.—Four houses, Western Avenue.
Twelve houses, Mount Street.
Coseley.—Council Senior and Junior Schools: additions and alterations. Mr. A. Ramsell (of Sedgley), architect.
Fulford.—Council School.
Goldenhill.—Council Schools: extensions (£5,600).
Penn, Upper.—Council School.
Stoke-on-Trent.—Central School of Science and Technology.
Wolverhampton.—District and County General Hospital (Edward VII. Memorial) Wing. Mr. A. W. Worrall, architect.

SURREY.
Bookham, Great.—Chrystie Memorial Hall.
Camberley.—Schools enlargement (£5,000).
Carshalton.—United Methodist Free Church, Ruskin Road (for 350 persons) (£3,000).
Farnham.—(Supplementary to September 22) Infirmary maternity ward additions. Mr. Adams (of Alton), contractor (£1,081).
Hascombe.—Village Hall (for 150 persons). Messrs. Underwood & Co. (of Dunsfold), contractors.
Haslemere.—Church Schools additions (£300).
Redhill and Reigate.—L. and S.W. Bank branches.
Thornton Heath.—Carnegie Public Library.

SUSSEX.
Eastbourne.—St. Andrew's Church.
Portslade.—Council School.
Worthing.—Fire Brigade cottages (£1,100).
Refuse destructor additions (£1,100).

WARWICKSHIRE.
Marston Green.—Guardians' Cottage Homes for Infants (two homes). Mr. P. W. Cox (of Handsworth), contractor (£2,840).

WORCESTERSHIRE.
Droitwich.—Territorials' Drill Hall and House.

YORKSHIRE.
Bempton.—Council School.
Hull.—Town Hall: front portion rebuilding. Messrs. Quibell, Sons & Greenwood, contractors (£25,378).
Nether Green.—United Methodist Free Church (£3,600).
Redcar.—Police Court.
Scarborough.—Refreshment room and shelters at North Bay, and enlargement of Floral Hall (£4,400).
Walkley.—Church.
York.—Workhouse alterations (£14,000).

WALES.

Aberdare.—Training School conversion into Guardians' Home for Workhouse aged and infirm. Mr. T. Roderick, architect.
Cornelly.—Council School additions.
Gilfach Fargoed.—Infants' and Old Schools: additions.
Hafod.—Presbyterian Chapel: rebuilding. Messrs. A. Ll. Thomas & G. S. Morgan (of Pontypridd), architects.
Llandrindod Wells.—Three new shops and a tea-room near the Common.
Oakdale.—100 workmen's cottages for Oakdale Navigation Colliery Company, Ltd. Mr. A. F. Webb (of Blackwood), architect.
Porthcawl.—Thirty-six houses.
St. Bride's-super-Ely.—Two cottages, also adaptation of farm buildings, at St.-y-Nyll.

SCOTLAND.

Armadale.—Town Hall for 1,000 persons (£2,500).
Dundee.—Cottage, Kirkton Road.
Cottage, Frederick Street.
Johnstone.—R.C. School for 440 pupils.
Leith.—Additions to engineers' works, 157 Leith Walk.
Lenzie.—Cottage, off Alexandra Road.
Muirhead.—Double villa, Lilybank Road.
Partick.—Tramway depot alteration. City architect.
Renfrew.—Darnley Hospital extension (£2,650).
Sorbie.—Garlieston School additions (£800).

THE British Vice-Consul at Libau, Russia, reports that a cathedral is to be built in that town as a memorial of the late Emperor Alexander III.; also that a new theatre i shortly to be erected.

AT the Waverley Market, Edinburgh, the new heating system to be installed will consume oil-fuel in preference t coal. The tender of Messrs. Mackenzie & Moncur has bee accepted for the purpose.

MR. ARTHUR TAYLOR, the Arbitrator appointed by th Local Government Board in connection with the Belfas improvement scheme, resumed his inquiry in the City Hall Belfast, on the 9th inst. The object of the scheme is to clea away several insanitary areas in the city by pulling dow the present houses, and the erection of up-to-date workmen' dwellings. The total cost is expected to be over £80,000.

THE Institution of Municipal Engineers will hold thei third annual general meeting at Windsor on the 21st inst The proceedings will open at noon with a reception by th Mayor and Corporation in the Guildhall, to be followed b the general meeting. After lunch a visit will be paid t Windsor Castle and such of the various works of the Cor poration as the members may desire to inspect.

THE Exeter City surveyor has prepared specifications estimate and detailed plans of the proposed extension of th Council's sanatorium. These provide for enlargement of th existing administration block; an observation and discharg block containing nurses' duty room and four single be wards; scarlet fever block containing two ten-bed wards an two single-bed wards with nurses' duty room, bathroom, hea ing chamber, and sanitary annexes; a diphtheria block con taining two six-bed wards and two single-bed wards; typhoid block containing two four-bed wards. &c.; a laundr block with disinfecting rooms for infected articles; mortuary stables, harness room, ambulance shed, and van shed. Th cost is estimated at £15,500.

THE Stafford Town Council have authorised the layin out of four sections of land on the Lammascote estate f the erection of houses, plots to be sold at 3*s*., 2*s*. 6*d*., 2*s*. 3*d* and 2s. per square yard, according to the situation, th Estates and Works Committee being empowered to procee with the construction of roads and sewers after sales of plo had been effected. A recommendation of the Estates an Works Committee was approved, with respect to the layin out of the remainder of the Coton Field Estate in 186 buil ing plots of varying frontages, the streets to be 36 feet wi with 6 feet footpaths on each side, and back roads of 12 fe wide. It was estimated that the cost of constructing t streets, including sewers, but excluding gas and water main would be £2,510. It was decided to have the main stre wholly illuminated at night with electric arc lamps, t present gas standards to be removed.

THE Clerk to the Stepney Board of Guardians describes his annual report the methods employed for giving work able-bodied inmates of the workhouse. A certain numb have recently been engaged in distempering and redecorati the interior of the building, under the supervision of t master, and in connection with this the report states: "Ma inmates who, on entering the workhouse, appeared to ha been furnished at birth with two left hands, have been taug to use the paint and the distemper brush in a dexterous ma ner, and have become really good workmen, who could ea their living outside if they would refrain from looking t long on the wine when it is red. The most expert of the men, the artist of the group, who mixes the paint and pr duces some startling effects in colour, is a bibulous chimne sweep."

THE EVOLUTION OF THE DWELLING-HOUSE AND SOME REFLECTIONS THEREON.

(Continued from last week.)

That which is known as "The Housing Problem" has reached in this country, as on the Continent, an acute stage, and the need of solution is more pressing than ever. That unhealthy houses and insanitary surroundings are unfavourable to the growth of healthy and good citizens needs no proof now; it is an accepted fact. But it is only of late years that this has been recognised by the nation as a whole. It has often been truthfully said that we, as a nation, are very slow to move; but there is no denying, also, that once public opinion is aroused, energetic action follows, and the result of an awakening in connection with the housing of the poor has been the demand that local authorities should put into force all their powers, and, if these are insufficient, that the Legislature should provide new and more adequate measures to effectively deal with this problem, which arises in both town and country.

The housing difficulty first manifested itself in the middle of last century, when the factory system was working out its significant changes in the condition of the working classes of Great Britain. Up to this time industry was domestic and agricultural; spinning and weaving were done at home in the cottages. The man worked the loom, working such hours as he pleased, and his wife and children spent the long evenings, when it was too dark to work in the fields, spinning yarn. There were no factories, no workshops, no machines. Then an industrial revolution was brought about by such inventions as Hargreaves's "spinning jenny," Arkwright's "water frame," Cartwright's "power loom," and the wonderful development that took place in the use of steam as a motive force. These, and the great increase in population, which doubled itself each century after the fifteenth, caused a marked exodus from the country, and resulted in the enormous growth of towns, and created all the acute sanitary difficulties attendant upon a high density of population within a limited area. This exodus from the country to the towns continues. Is it possible to stop this tide of the pick of the rural population to the big towns, and if so, is it advisable? I think all will agree that if it is possible to stay this efflux from the rural districts it would be wise to do so. No doubt the attractions of town life have a great deal to do with the drawing of young men away from the country, yet this is but one of many factors, and it cannot be denied that there is no hope of independence during their working years, or of a sufficiency for old age if they remain in the country. If the agricultural labourer could only be given some "stake in the soil" he tills—he has none now—a different aspect would be open to him. In Denmark during the last fifty years not only has the exodus from country to town been checked, but the tide has been turned in the opposite direction. This was accomplished by a great national effort, shown in a remarkable system of agricultural education and co-operation, and the establishment of a system of small holdings in all parts of that country; no less than five-sixths of the land in Denmark is now held by freeholders and peasants in this way.

In my mind there are great possibilities in England for the agricultural peasantry if some well-devised system of small holdings on similar lines, or such others as the requirements of country might demand, could be brought about. Not only would it keep the countrymen from assisting to overcrowd the towns, but it would be a means of producing in this country an enormous amount of dairy and other produce, for which we are now dependent upon other countries. Contrast Denmark, where five-sixths of the land is held by small holders, &c., and our own country, where four-fifths of the land is held by some 7,000 landowners.

Mr. Rider Haggard, in an article in the *Garden City* in 1904, spoke of small holdings as one of the means of gradually raising a peasantry and attaching them to the soil, and so pave the way for the "breeding of a healthy, industrious, and contented people." The Rural Housing and Sanitation Association pointed out in one of their annual reports "that where a system of small holdings has been adopted, and where sufficient cottages have been built to meet the demands, there the exodus from the villages has been arrested."

Another cause of the depopulation of the villages is the lack of cheap house accommodation, akin to the lack of small holdings. Cottages at cheaper rents and in greater numbers must be available, or the process of depopulation will continue. The evil of this lack is intensified by the shockingly insanitary state of much of the existing accommodation. Whilst the standard of living throughout the country has steadily risen during the last century, that of rural housing appears to have just as steadily fallen. The reasons for this lack of house-room may be attributed, amongst other causes, to:

Landowners ceasing to build cottages.
Demolition of much insanitary property rather than the owners putting it into a sanitary condition.

The results of this house famine press very hard on those who reside in villages, and in no way are its effects worse felt than in the overcrowding caused in the existing cottage.

This is as real an evil as is the overcrowding in many of the large cities to-day. And just so long as it lasts, just so long shall we have young couples about to marry drifting towards the towns, forced by the impossibility of finding house accommodation in their own village.

Let us now look at the large towns and cities, where all the worst features of defective and inadequate housing accommodation appear to concentrate themselves, and see what provision is made for the housing of persons of the poorer working classes. Speaking broadly, there are:

The common lodging-house.
The block dwelling.
The tenement house.
The cottage flat.
The separate dwelling-house.

The Common Lodging-house.—Those who have experience in this class of residence in our large, or even small towns, know that, especially when in the hands of the ordinary lodging-house keepers, it is not a desirable place of abode for respectable people, however poor they may be. Notwithstanding the more or less regular inspection by the officers of the local authority, there is a lack of cleanliness, an amount of rough and bad company, and few of those influences which can be coupled with the word home. Every credit is due to the religious agencies and philanthropists who have made provision for the poorer population in this way. In London we have the Night Shelters of the Salvation Army, the Labour Homes of the Church Army, and, for single men, the Rowton lodging-houses. Many municipalities have built model lodging-houses, amongst them being those of London, Manchester, Liverpool, and Glasgow. In these the inmates have a clean bed, and at some of the houses, particularly the Rowton houses, a separate cubicle, also provision for a bath, whilst food may be obtained from the kitchen. This class of accommodation only serves a comparatively small number of workers. In some few towns in late years common lodging-houses have been provided for women.

(To be concluded.)

The Harrogate Town Council have resolved to make application to the Local Government Board for sanction to borrow £1,765 for the improvement and widening of a portion of East Parade; and £5,000 for the carrying out of a portion of the cemetery scheme at Stonefall.

An important freehold site in the heart of the City of London, having an area of 12,700 superficial feet, is to be put up for auction on Wednesday next. The site is at present occupied by the New Synagogue, Great St. Helens, two houses, and a block of offices. It is approached from Bishopsgate through Crosby Square and from Leadenhall Street through Shaft's Buildings. With the exception of the private houses and the offices vacant possession will be given on completion of the purchase. The sale will be at the Auction Mart and will be under the auspices of Messrs. Edwin Fox, Bousfield, Burnetts & Baddeley. Full particulars may be obtained at the auctioneers' offices in 99 Gresham Street, Bank, E.C.

Messrs. John Train & Taylor have been awarded the contract, at a price of £56,679, for the construction of a granary at Meadowside, Partick, for the trustees of the Clyde Navigation. The granary is to be 320 feet long by 80 feet wide, inside dimensions, and 11 storeys in height. The building will comprise two portions, viz., grain bins or silos to contain 20,000 tons of grain, and the floor warehouse to store 11,000 tons of grain. Tenders for the construction of the granary were invited in the following methods, viz. (*a*) Entire building of reinforced concrete; (*b*) entire building of reinforced concrete, but with brickwork facing the external walls; (*c*) silos of reinforced concrete with external walls of brickwork; floor warehouse having external walls of brickwork, internal columns of cast-iron, and floors of rolled steel beams and concrete. The last method has been adopted. The time allowed for the completion is eighteen months.

VARIETIES.

At Torquay improvement schemes are to be carried out at an outlay of about £150,000.

The Pontefract Town Council have postponed consideration until the December meeting of the proposed erection of municipal workmen's dwellings, at a cost of about £20,500.

The Home Office have taken a portion of a building in Victoria Street, London, S.W., to be utilised as a permanent Museum of Safety Appliances for industries within the jurisdiction of the Home Office.

A new church is to be erected at Neasden on a site at the corner of Dollis Hill Lane and Dudding Hill Lane. The first portion of the building will cost £5,500, of which amount over £3,000 has been collected.

The directors of the London and Lancashire Fire Insurance Company have decided to pay on the 1st prox. an interim dividend of 10*s.* per share, less income tax, as compared with last year's interim dividend of 8*s.* per share, free of income tax.

The Wrotham Urban Council are about to apply for a loan of £10,000 for the proposed sewerage scheme. Mr. Elliott, the surveyor, estimates the chief items to be sewers £6,669 and works £2,760.

The Rector of Slough has received a gift of money sufficient to complete the west end of the parish church, and also to build a tower and spire. The work is estimated to cost about £6,000.

The Derbyshire County Council have appointed a sub-committee to select a site in the northern portion of the county suitable for a lunatic asylum. The cost must not exceed £15,000. It is believed that the projected new building will ultimately cost £240,000, accommodation being provided immediately for 400 patients, and eventually for 800.

The Birmingham Baths Committee recommend that the existing baths in Kent Street should be enlarged in order to provide much-needed exclusive accommodation for women. An adjacent site could be purchased for £4,000, and the total cost of the new buildings is estimated at a further £11,169.

The Rhyl Urban District Council last week adopted the recommendation of Mr. Baldwin Latham, M.Inst.C.E., to provide increased pumping power at the sewage pumping station. The relaying of the Marsh Road sewer is also to be carried out by the town surveyor at the earliest possible moment at a cost of £5,000.

A joint deputation representing the Conservative and Liberal members of the Leeds City Council waited upon Mr. William Nicholson, contractor, of Hunslet, at the Leeds Town Hall on Tuesday, formally requesting his consent to nomination as Lord Mayor of the city on November 9. Mr. Nicholson (of Messrs. William Nicholson & Son (Leeds), Ltd., of Hunslet, and South Brook Street, Leeds) accepted the nomination.

The Scarborough Town Council have approved plans for the extension of the promenade in the North Bay and the erection on the undercliff of twenty shelters, forty bathing huts, and refreshment rooms, at an estimated cost of £3,500. It was decided that £1,400 should be spent in enlarging the Floral Hall. Application has been made for the necessary loan.

The Asylums Committee of the Essex County Council report that the amount expended on the new asylum at Colchester up to September 4 was £210,251 16*s.* 2*d.* The tender of Messrs. Arnold & Son for the erection of detached buildings, including acute hospitals, consumptive hospitals, idiots' block, nurses' home, attendants' recreation block, private patients' block, &c., for £82,967 8*s.* 4*d.* has been accepted.

The City of London Guardians last week adopted a scheme for alterations at the Bow Infirmary estimated to cost about £11,000, of which £8,150 represents the structural work and £3,000 the engineering scheme. The Board have decided to enter into a contract with Mr. G. R. Dolby, consulting engineer, to supervise the engineering scheme at a fee of 250 guineas—no extras of any kind to be paid; and that a contract should be also entered into with Mr. A. E. Pridmore, the architect, to supervise the building scheme at a fee of 5 per cent. on the certified amount of work done, and that 50 guineas should be paid to him for preliminary plans and schemes submitted but not carried out.

A committee representative of the various educational bodies in Scotland is considering the question of carrying out a comprehensive scheme of residences to meet the needs of the women students attending Edinburgh University, the training centre for teachers, and other institutions in Edinburgh. It is estimated that the women students to be provided for under the proposed joint scheme number 350, and that the capital outlay in the purchase of a site and the erection and equipment of buildings will amount to about £89,000. This sum will require to be met by Treasury and Education Department grants, and by contributions from other sources. It is understood that the Carnegie Trust are prepared to give assistance.

TRADE NOTES.

Mr. R. Borlase Matthews, Wh.Ex., M.I.E.E., informs us that he is relinquishing his present work as a consulting engineer to become manager to Messrs. Ozonair, Ltd., 96 Victoria Street, Westminster, S.W.

Under the direction of Messrs. Jeffery & Lacey, architects, Ashford, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air inlets, has been applied to the Picture Palace, Ashford, Kent.

Messrs. Wm. Potts & Sons, Ltd., clock manufacturers, Leeds, have got instructions to restore the clock and large illuminated dials of St. Ann's Church, Limehouse, E. They also erected a large clock with three external dials at the Grammar School, Ashburton, Devon. The firm, we may add, made the Ashburton parish church clock and chimes over twenty years ago, which have given satisfaction. The firm are also making clocks for the Coronation Committees at Brough, in Westmorland, and Abbey Town, near Carlisle. Amongst their other recent orders are railway clocks for South America.

The Machine Gas, Limited (Cox's Air-Gas System), of 14-15 D'Arblay Street, Oxford Circus, W., have received instructions from the Lyminge (Folkestone) Guardians to supply an additional plant of 200 lights. The importance of this order is enhanced by the fact that for the past twelve months there has been running at the workhouse one of Cox's patented air-gas plants. No better testimonial to the efficiency of Cox's system could be offered than this repeat order.

The Yale and Towne Co., 6 City Road, Finsbury Square, E.C., with all their customary alertness are prepared to materially help the ironmonger who purchases their products towards finding a quick market for them. This is achieved by a loan of a Yale window display, which should be sufficient to arrest the attention of any passer-by and interest him in the inner mechanism of a Yale cylinder lock as shown by a large poster showing a Yale lock with all the works exposed. Once his attention is caught it is merely a question of temperament as to how soon the man-in-the-street will purchase. The Yale and Towne Co. expedite the conquest by providing a generous supply of booklets and leaflets to instruct and amuse. Any ironmonger or dealer who wants to push the sale of Yale products—and they are eminently a safe line—should communicate with the company regarding their window display.

"Self-Aid in Fire" is the title of a well-written booklet issued by the "Citex" Fire Extinguisher Co., Ltd., which deals with chemical extinguishing machines in general and the merits of the "Citex" hand machine in particular. A Citex machine consists of three parts: (1) an outer shell of solid-drawn steel to contain water and a cartridge; (2) a brass screw cap with plunger; and (3) a cartridge containing acid in its inner cylinder and a concentrated solution of alkali in its outer. Upon the plunger being bumped upon the floor the two lead foils separating the acid and alkali chambers are perforated, and the chemicals mix gradually, so as to bring about the generation of the gas which projects from the nozzle a stream of a powerful chemical extinguishing fluid a distance of some 35 feet. The first occasion when the "Citex" was exhibited was last year at the Japan-British Exhibition at the White City, London, when the award of a gold medal was made. In November 1910, at the International Railway Exhibition at Buenos Ayres, "Citex" obtained the highest award in competition with firms of old standing from all over the world. Two hundred "Citex" were installed at the White City Exhibition in 1910, and again for the Coronation Exhibition. In the present year a highly successful demonstration was given at the White City before the Association of Professional Fire Brigade Officers, when a fierce fire was extinguished in a few seconds. It is important to know that besides many striking merits in construction the "Citex" costs nothing whatever to use, as the cartridges are replaced free of cost in exchange for empty ones used in a fire.

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EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Bolton.—The Lancashire and Cheshire Miners' Federation invite architects in practice on their own account within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1s. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton.

Bristol.—Oct. 31.—The Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

Hastings.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1s. deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.—N.B. The time for sending in applications and designs has been extended until December 30.

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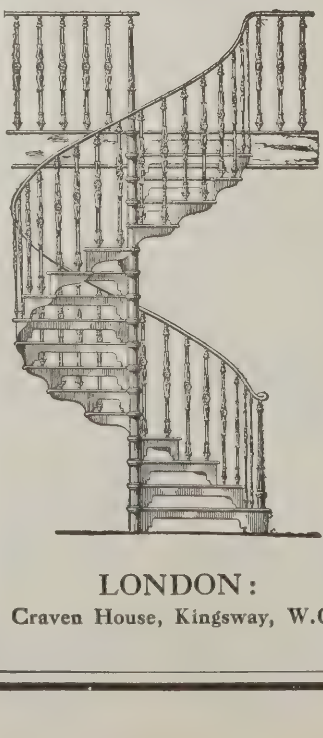

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Verandahs, Balconies, Porches, Bandstands, Shelters, Gates and Railings, Columns, Brackets, Cantilevers, Balusters, Newels, &c., &c.

CATALOGUES AND PRICES ON APPLICATION.

LONDON:
Craven House, Kingsway, W.C.

LIVERPOOL:
22 & 24 South Castle Street.

EDINBURGH:
22 Picardy Place.

GLASGOW:
32 & 34 Bothwell Street.

Works: FALKIRK, N.B.

London.—Oct. 31.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1*s*., which will be refunded on receipt of a bona-fide design or return of conditions within one month of receipt. All particulars from Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

Rochdale.—The Board of Management of the Rochdale nfirmary invite architects practising in Rochdale prior to January 1, 1911, to submit plans, designs, and estimates or extending the present buildings. Conditions of competiion, with other information, together with instructions to architects, can be obtained on application to the secretary. An assessor has been appointed by the committee. Mr. T. Elvyn Kershaw, secretary, Secretary's Office, the Infirmary, Rochdale.

Scotland.—The Town Council of Armadale invite architects to submit plans for a public hall and offices, costing not more than £2,500, completed, painted, and furnished. A premium of £15 for the selected design will be paid on its being ascertained that the design can be carried out within he cost stated, and £10 will be paid for the next. The architect submitting the successful design will be entrusted with he work at the usual professional remuneration. Mr. Wm. Caesar, Town Clerk, Armadale.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for he former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Wales.—Nov. 30.—The Cardiff Education Committee invite designs and estimates for a technical institute proposed to be erected in Cathays Park. Mr. J. S. Gibson, architect, will act as assessor. Full particulars will be sent o architects on application, accompanied by a deposit of £2 2*s*., which will be returned to all architects submitting bona-fide designs or who return the conditions within six weeks. Mr. J. Jackson, director of education, Education Offices, City Hall, Cardiff.

CONTRACTS OPEN.

Bromborough.—Oct. 28.—For the erection of Council Offices. Deposit £1 1*s*. Mr. J. Clarke, surveyor, 34 Castle Street, Liverpool.

Cleckheaton.—Oct. 26.—For the various works required n erection of shops and offices, Northgate, for the Cleckheaton Industrial Co-operative Society, Ltd. Messrs. R. Castle & Sons, architects, London, City and Midland Bank Chambers, Cleckheaton.

Dartford.—Nov. 6.—For the erection of Council school o accommodate 300 scholars at Dartford, Maypole Estate. Send in names and £1 deposit by Oct. 21 to Mr. F. W. Crook, secretary to the Kent Education Committee, Caxton House, Westminster, S.W.

Denton.—Oct. 23.—For provision and erection of a greenhouse at the Cemetery. The Surveyor, Town Hall, Denton, near Manchester.

Dewsbury.—Oct. 26.—For the various works required in additions to business premises. Messrs. J. Firth & Son, architects, 67 Vulcan Road, Dewsbury.

Dukinfield.—Oct. 25.—For the construction of extenions of the sewage works at Bradley Hurst, Dukinfield, or the Stalybridge and Dukinfield Joint Sewage Board—viz.: (1) Construction of detritus tanks; (2) additional settling tanks; (3) storm water tanks; (4) humus tanks; (5) percolating filters; (6) duplication of portion of main outfall sewer; (7) storm-water overflow and other appurenant works. Deposit £2 2*s*. Mr. J. P. Wilkinson, M.I.C.E., 301 Cathedral Street, Manchester.

East Preston.—Oct. 23.—For the remodelling of the atrines and other works at the workhouse, East Preston, near Worthing. The Workhouse.

Edinburgh.—Oct. 31.—For the erection (main contract) of the new administration block at the Royal Scottish Museum, for the Commissioners of H.M. Works and Public Buildings. Tenders are required for the whole work, and not for separate trades. Deposit £1 1*s*. H.M. Office of Works, 3 Parliament Square, Edinburgh.

Erith.—Oct. 31.—The London County Council invites tenders for the construction of an additional engine-house, &c., at the Southern Outfall Works, Crossness, in the Urban District of Erith, Kent. Send £10 deposit to the Cashier of the Council. Mr. Maurice Fitzmaurice, C.M.G., the Chief Engineer of the Council, the County Hall, Spring Gardens, S.W.

Exmouth.—For the following works, namely, alterations and new shop front at "Mintaro," Exeter Road, for new sub post-office; alterations and additions and new drainage works at "The Elms," Salterton Road. Mr. E. E. Ellis, architect, Exmouth.

Felling-on-Tyne.—Oct. 27.—For erecting a superintendent's house and stable, &c., at the County Police Station. Mr. W. Crozier, A.M.Inst.C.E., county architect and surveyor, Shire Hall, Durham.

Glasgow.—Oct. 24.—For the following works in connection with new epileptic colony, East Muckcroft, Chryston, for the Glasgow Parish Council, namely: (1) heating and ventilating; (2) painter work; (3) tile work; (4) steel and iron works. Deposit £1 1*s*. Mr. J. R. Motion, inspector and clerk, 266 George Street, Glasgow, or the Architect's Office, Parish Council Chambers.

Guildford.—Oct. 25.—For pulling down and removing certain buildings in North Street, the re-erection of certain walls, and making good property disturbed, for the Town Council. Mr. C. G. Mason, borough surveyor, Tuns Gate, Guildford.

Hemsworth.—Oct 21.—For the various works required in the erection of a school at Hemsworth, near Wakefield. Send names by Oct. 21 to Mr. W. E. Richardson, architect, Rothwell, near Leeds.

Hornchurch.—Oct. 26.—For erection of six cottages on Breton's Farm, South Hornchurch, for the Romford Urban District Council. Mr. H. T. Ridge, Council Offices, Market Place, Romford.

Ireland.—Oct. 24.—For building an addition to their creamery, for the Pettigo Co-operative Agricultural and Dairy Society. Mr. F. G. Townsend, A.M.I.C.E.I., architect, Ballyshannon, or Mr. J. M'Hugh, secretary, Pettigo.

Ireland.—Oct. 25.—For the erection of sanitary annexes at the fever hospital of the Loughlinstown Workhouse, for the Rathdown Board of Guardians. (Mr. G. Moore, C.E., 1 and 2 Foster Place, Dublin.) Mr. P. Cunniam, clerk, Loughlinstown.

Ireland.—Nov. 4.—For the erection of a Presbyterian Church in Waterford. Mr. T. Scully, B.A.,B.E., architect, Waterford. Deposit £2 2*s*. Mr. A. F. Torrie, secretary of Committee, "Rosemount," Waterford.

Ireland.—Nov. 4.—For erection of a convent and chapel for the Sisters of the Presentation Order, Tralee, co. Kerry. Deposit £1. Mr. S. F. Hynes, F.R.I.B.A., architect, 5 South Mall, Cork.

Isle of Man.—Oct. 30.—For erection of a block of dwellings in Lord Street, Douglas, for the Douglas Town Council. Mr. F. Cottle, C.E., borough surveyor, Town Hall, Douglas.

King's Lynn.—Nov. 2.—For alterations at the isolation ward of the workhouse. Messrs. Jarvis & Sons, architects, Lynn.

Kirkheaton.—Oct. 25.—For erection of a dwelling-house at Kirkheaton (Yorks.) for the Field Head Co-operative Society, Ltd. Mr. J. Berry, architect and surveyor, 3 Market Place, Huddersfield.

London.—Nov. 6.—For supply and erection of two coal bunkers at the electric-lighting station, Tottenham Lane, Hornsey, for the Town Council. Mr. E. J. Lovegrove, borough engineer and surveyor, Municipal Offices, Highgate, N.

London.—Nov. 13.—For erection of new offices for the Board of Agriculture and Fisheries. Deposit £3 3*s*. Mr. H. A. Collins, A.R.I.B.A., at H.M. Office of Works, &c., Storey's Gate, S.W.

Manchester.—Oct. 25.—For the extension of the laundry at the Withington Workhouse. Deposit £1 1*s*. Mr. Frederick H. Overmann, architect, 48 King Street, Manchester.

Mereworth.—Oct. 30.—For erection of six cottages at Kent Street for the Malling Rural District Council. Deposit £1 1*s*. Mr. F. J. Allison, clerk, Council Offices, West Malling, Kent.

Newbiggin-by-Sea.—Oct. 25.—For building new lecture hall, for the Wesleyan Church Trustees. Mr. G. Bell, architect, 34 Blackett Street, Newcastle-on-Tyne.

Ormskirk.—Oct. 26.—For certain alterations at the workhouse. Mr. J. Dod, architect, 16 Exchange Buildings, Liverpool.

Plymouth.—Oct. 31.—For the reconstruction of a portion of the East Quay at the Great Western Docks. The Great Western Railway Engineer, North Road Station, Plymouth.

St. Albans.—Nov. 2.—For erection of six pairs of semi-detached residences for asylum attendants in the grounds of the Middlesex County Asylum, Napsbury. Mr. H. T. Wakelam, county architect, 63 Victoria Street, Westminster, S.W.

Scotland.—Oct. 27.—For executing the mason, carpenter, slater, plasterer, asphalter, plumber, smith, painter and glazier and electrical lighting works of new cookery and laundry classrooms, &c., at the School of Domestic Science, 352 King Street, Aberdeen, for the Governors of Robert Gordon's Technical College. Messrs. Kelly & Nicol, architects, 367 Union Street, Aberdeen.

Sheffield.—Oct. 25.—For the extension of the male sanatorium at the Union hospital, Fir Vale. Mr. G. D. Baxter, clerk of the works, Fir Vale Workhouse.

Shotton.—For laying concrete floors and other repairs at their Shotton branch premises. The Haswell Co-operative Provision Society, Ltd., Front Street, Haswell.

Southampton.—Oct. 28.—For executing extension works at the tramway depôt, Portswood, for the Corporation. Deposit £3 3*s*. The Borough Engineer's Office, Southampton.

Southwick.—Oct. 25.—For erection of presbytery at St. Hilda's R.C. Church, Southwick, Durham. Deposit £1 1*s*. Messrs. J. Potts & Son, 57 John Street, Sunderland.

Stalybridge.—Oct. 23.—For the erection of a warehouse in Harrop Street and Chapel Street, for Messrs. Potts & Hartley. Mr. E. Garlick, architect, 3 Portland Place, Stalybridge.

Stanwell.—Nov. 10.—For erection of the various buildings and other appurtenant works in connection with the isolation hospital for infectious diseases at Stanwell, Middlesex, for the Staines Joint Hospital Committee. Deposit £5 5*s*. Mr. G. W. Manning, architect, London Road, Ashford, Middlesex.

Stockport.—Oct. 23.—For certain repairs to be executed at the cottages, 48, 50, and 52 Bramhall Moor Lane, Hazel Grove. Messrs. Peirce & Son, architects, St. Petersgate, Stockport.

Sturminster Newton.—Oct. 28.—For erection of a new elementary school at Sturminster Newton, Dorset. Plans, specifications, and forms of tender may be seen at the County Offices, Dorchester; at the offices of Messrs. Fletcher, Son & Brett, Wimborne; and at the Justices' Room, Sturminster Newton.

Tredington.—Dec. 2.—For erection of an isolation hospital with outbuildings and for alterations and additions to the existing hospital at Tredington, near Tewkesbury. Deposit £1 1*s*. Mr. J. Villar, F.S.I., M.S.A., architect, 5 Essex Place, Cheltenham.

Tywardreath.—Oct. 31.—For erection of three farmhouses, three sets of farm buildings, alterations and adaptations of existing buildings, and new walls and fences at Lampetho Farm, Tywardreath, near Par, for the Small Holdings Committee of the Cornwall County Council. The County Land Agent, Public Rooms, Truro.

Uxbridge.—Oct. 30.—For the necessary works in the erection of a public lavatory at the Market House. Mr. W. L. Eves, F.R.I.B.A., F.S.I., surveyor, 54 High Street, Uxbridge.

Uxbridge.—Oct. 23.—For supply of schemes and estimates for additional heating apparatus at the Joint Hospital, Kingston Lane, Hillingbon, Uxbridge. Mr. Charles Woodbridge, Clerk to the Joint Hospital Board, 38 High Street, Uxbridge.

Wales.—For erection of concrete retaining wall at Bryn Road, Swansea, 150 feet long, 7 feet high, rising to 15 feet; also 120 feet, 7 feet high; also 12 feet, 7 feet high, rising to 15 feet. Mr. W. W. Holmes, 2 Gloucester Place, Swansea.

Wales.—Oct. 23.—For the erection and completion of two semi-detached villas at Coytrahen, Tondu, Glamorgan. Mr. F. W. Burnett, architect and surveyor, Tondu, Glam.

Wales.—Oct. 23.—For erection of museum hall, &c., at the City Hall, Cardiff, for the City Council. The City Engineer's Office, City Hall, Cardiff.

Wales.—Oct. 24.—For erection of 100 (or more) workmen's houses at Blackwood (Mon.) for the Oakdale Navigation Colliery Co., Ltd. Mr. A. F. Webb, M.S.A., architect and surveyor, Tredegar Chambers, Blackwood.

Wales.—Oct. 25.—For erection of twenty-eight dwelling-houses and premises at Ystalyfera and works connected therewith, together with the construction of a road, for the Pontardawe Rural District Council. Deposit £5. Mr. J. Morgan, engineer and surveyor, Council Offices, Pontardawe. The draft contract agreement can also be seen at the same time. Applicants must deposit at the time of inspection the sum of £5, which will be refunded on receipt of a bona-fide tender, accompanied by the specification. Sealed tenders, endorsed "Ystalyfera Houses," and addressed to Mr. W. Lewis, clerk, must be delivered at the Council Offices, Pontardawe, by Oct. 25.

Wales.—Oct. 27.—For erection, completion, and maintenance for six months of a semi-permanent school building to accommodate 376 children, in connection with the Broughton Pentre Council School, near Wrexham, for the Denbighshire Education Authority. The work will be let in two contracts:—Contract 1: Permanent works, which include foundations to school buildings and latrines. Contract 2: The superstructure of school building, to be of wood framed, lined inside with matchboarding and outside with weather-boarding, and roof covered with Welsh slates and asphalte. Deposit £1 1*s*. Mr. W. D. Wiles, county architect, 42a High Street, Wrexham.

Wales.—Oct. 28.—For erection of twenty-six houses on the Bontnewydd Farm, Trelewis, Glam. Mr. Roderick, architect, Clifton Street, Aberdare.

Wales.—Oct. 30.—For erection of 100 houses, making and forming streets, sewers, and drains at Ogmore Vale, for the Lewis-Merthyr Consolidated Collieries, Ltd. Messrs. H. D. Williams & Son, Blackmill, Glam.

Wales.—Oct. 30.—For the execution of alterations and additions to the Town Hall buildings, Maesteg. Deposit £5 5*s*. Mr. S. J. Harpur, architect and surveyor, 32 Commercial Street, Maesteg.

Wales.—Nov. 2.—For erection of sixteen houses at Bedlinog, for Cefn Cae Building Club. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Nov. 6.—For the erection of 21 houses at Abercanaid, for the Abercanaid No. 2 Building Club. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Nov. 8.—For taking down old cottages at Little Isle of Wight, Merthyr, and erecting four new cottages on site. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Nov. 21.—For erection of new girls' school at Troedyrhiw, Merthyr Tydfil. The Depupty-Surveyor, Town Hall, Merthyr Tydfil.

Waltham Cross.—Oct. 30.—For the extension of Waltham Cross Post Office, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. The Postmaster, Waltham Cross Post Office, and H.M. Office of Works, &c., Storey's Gate, S.W.

Wickersley (Yorks).—For asphalting playgrounds at the Wickersley new Council school, for the Whiston Sub-Committee of the West Riding County Council Education Committee. Mr. S. Abson, divisional clerk, Education Office, Woodhouse.

Winchester.—Oct. 24.—For supply of materials and labour required in the erection of an elementary school on the Danemark Estate. Send names and £2 2*s*. deposit to Mr. A. H. Johnson, architect, Winchester.

Windsor.—Oct. 24.—For erection of cart-sheds, &c., at the new yard in Queen's Road, Sunninghill, for the Windsor Rural District Council. Mr. W. Menzies, surveyor, Englefield Green.

Woodgate.—Oct. 24.—For the work of erecting a Council school at Woodgate, in the parish of Northfield, near Birmingham (Messrs. Crouch, Butler & Savage, architects, 39 Newhall Street, Birmingham). The school is to accommodate 250 scholars. Deposit £1 1*s*. Mr. J. Moore, secretary, Education Offices, King's Norton, near Birmingham.

Wortley.—For the various works required in the extension of the Star Clothing Factory and Hygienic Laundry. Mr. J. P. Kay, architect, The Lodge, Town Street, Bramley.

Wrexham.—For erection of a new church in the Ruthin Road district, with furniture and boundary walls. Deposit 10*s*. Messrs. Prothero, Philpott & Barnard, architects, 13 Promenade, Cheltenham.

Yorks.—Oct. 26.—The West Riding Small Holdings and Allotments Committee invite whole tenders for the following works—viz.: (1) Repairs to Oakroyd Farm, Lower Dunsforth, near Boroughbridge; (2) alterations and additions to farm at Upper Dunsforth. Send £1 1*s*. deposit to the West Riding Treasurer, County Hall, Wakefield. The West Riding Architect, Wakefield.

TENDERS.

BUSHEY HEATH.

For proposed alterations and additions to St. Peter's Church, Bushey Heath, Herts. Mr. Geo. H. Fellowes Prynne, F.R.I.B.A., 6 Queen Anne's Gate, Westminster, S.W. Quantities prepared by Mr. R. H. Hale, F.S.I., Westminster, S.W.

Brown	£7,724	0	0
Holland & Hannen	7,640	0	0
Prestige & Co.	7,516	0	0
Miskin & Sons	7,345	0	0
Wilkins & Sons	7,329	0	0
Webster & Cannon	7,305	0	0
Longley & Co.	7,246	0	0
Goddard & Sons	7,121	0	0
Walden & Cox	7,110	0	0
Franklin	7,099	0	0
Thompson & Sons	7,075	0	0
G. & J. Waterman	7,024	0	0
Bowman & Sons	6,965	10	10
Honour & Sons	6,797	0	0
W. J. Dickens, Ealing, W. (*conditionally accepted*)	6,778	0	0

BROADSTAIRS.

For the construction of public conveniences on the Parade and at the rear of the Council Offices. Mr. H. Hurd, C.E., town surveyor.

Paramors	£1,694	14	11
E. R. Dunn	1,564	0	0
Martin	1,551	0	0
May, Broadstairs (*accepted*)	1,500	0	0
Burton	1,285	0	0

CANTERBURY.

For the erection of a nurses' cottage at the Workhouse. Mr. H. Dore, architect, Canterbury.

Clarke & Epps	£1,146	0	0
Harris Bros.	1,095	0	0
Gentry	1,040	0	0
Edwards	1,035	0	0
Shippam	1,018	0	0
Browning	1,016	0	0
Lewis & Sons	1,012	0	0
C. Mount, Canterbury (*accepted*)	949	0	0

CLACTON-ON-SEA.

For construction of two lifeboat slipways. Mr. W. T. Douglass, architect, Westminster, S.W.

Edwards & Stace	£2,554	9	10
Executors of J. Arundel	2,234	0	0
Gradwell & Co.	2,067	0	0
Smith	1,649	0	0
Brebner & Co.	1,582	7	0
Pedrette	1,586	8	2
Adam & Sons	1,460	10	0
Dickson, St. Albans (*accepted*)	1,407	10	4

GLASGOW.

For the various works in connection with the new Epileptic Colony, East Muckcroft, Chryston, for the Glasgow Parish Council. Mr. R. Tannock, master of works to the Parish Council.

Accepted tenders.

Rodger, Glasgow, excavator and brick works	£10,169	0	0
Newton & Sons, Maryhill, joiner, glazier, and ironmongery works	6,692	0	0
Renfrew, Glasgow, plumber work	3,616	0	0
McKellar, Glasgow, plaster and concrete works	2,846	0	0
Reid & Co., Chryston, roads, &c.	1,792	0	0
Robertson, Glasgow, slater work	1,700	0	0

HOUGHALL.

For erection of hospital extension, for the Durham Rural District Council.

Darlington Construction Co.	£749	0	0
Spiers & Co.	695	0	0
Smith & Co.	682	0	0
Rowle & Co.	678	0	0
Harbrow	655	0	0
Alnwick Foundry & Engineering Co.	575	0	0
Hawkins & Co.	550	0	0
F. D. Cowison, Glasgow (*accepted*)	530	0	0

LONDON.

For the reinstatement of the "Athenæum" public-house, Camberwell New Road, in connection with the acquisition of the portion of the property by the L.C.C. for street widening.

F. & H. F. Higgs	£2,230	0	0
Holloway	2,192	0	0
Rider & Son	2,011	0	0
Rice & Son	1,939	0	0
Henry Lovatt	1,887	0	0
W. Smith & Son, Harleyford Road (*accepted*)	1,836	0	0

LONDON.—For supply of creosoted deal paving blocks for use in connection with the L.C.C. tramways.

(A) 40,000 size 3 in. by 9 in. by 4 in., delivered to County wharf, Belvedere Road.
(B) 15,000 ,, 3 in. by 9 in. by 4 in. ,, Deptford wharf.
(C) 5,000 ,, 3 in. by 9 in. by 4 in. ,, Battersea wharf.
(D) 60,000 ,, 3 in. by 9 in. by 4½ in. ,, County wharf, Belvedere Road.
(E) 20,000 ,, 3 in. by 9 in. by 4½ in. ,, Deptford wharf.
(F) 20,000 ,, 3 in. by 9 in. by 4½ in. ,, Battersea wharf.
(G) 100,000 ,, 3 in. by 9 in. by 4½ in. ,, Metropolis wharf.
(H) 20,000 ,, 3 in. by 9 in. by 4½ in. ,, Parkhurst Road.

Prices at per thousand.

(i) *Delivered by van.*

	A			B			C			D			E			F			G			H		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
W. W. Howard Bros. & Co.	6	0	10	6	0	10	6	1	4	6	14	8	6	14	8	6	15	2	6	14	8	6	15	2
Gabriel & Sons	6	1	1	6	0	0	6	2	0	6	14	10	6	13	9	6	15	10	6	15	10	6	16	9
Burt, Boulton & Haywood	6	2	6	6	2	6	6	3	6	6	17	6	6	17	3	6	18	3	6	17	6	6	19	3
The Improved Wood Pavement Company	6	5	0	6	1	0	6	5	0	7	0	6	6	16	0	7	0	6	7	0	6	7	0	6
Millars' Karri & Jarrah Company (1902)	6	4	0	6	4	0	6	5	0	6	19	6	6	19	6	7	0	0	6	19	6	7	2	0
Lee & Sons	6	4	6	6	7	0	6	3	3	6	19	3	7	1	9	6	18	0	7	2	6	7	2	6
William Griffiths & Co.	6	10	0	6	6	0	6	10	6	7	3	6	7	0	0	7	3	6	6	16	0	6	19	9
Mead & Pearce	7	11	0	7	11	0	7	11	0	8	8	0	8	8	0	8	8	0	8	8	0	8	8	0

(ii) *Delivered by barge.*

	A			B			C			D			E			F			G			H		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
W. W. Howard Bros. & Co.	5	15	8	5	15	8	5	16	4	6	9	9	6	9	9	6	10	6	6	11	1		—	
Gabriel & Sons	5	19	2	5	19	0	5	19	5	6	12	11	6	12	9	6	13	2		—			—	
Burt, Boulton & Haywood	6	0	0	6	0	0	6	0	0	6	15	0	6	14	9	6	15	0	6	18	9		—	
The Improved Wood Pavement Company	6	3	0		—		6	3	0	6	18	0		—		6	18	0		—			—	
Millars' Karri & Jarrah Company (1902)	6	3	0	6	3	0	6	3	6	6	18	0	6	17	6	6	18	0	7	2	6		—	
Lee & Sons	6	4	3	6	4	3	6	4	3	6	18	9	6	18	9	6	18	9	7	1	3		—	
William Griffiths & Co.	6	4	6	6	6	6	6	14	6	6	18	0	6	19	0	6	19	0	6	15	0		—	
Mead & Pearce	7	11	0	7	11	0	7	11	0	8	8	0	8	8	0	8	8	0	8	8	0	8	8	0

The Highways Committee have accepted the tender of Messrs. W. W. Howard Bros. & Co., Trinity Square, for delivery by van to Parkhurst Road depot and by barge to all other depots.

LONDON.—For the supply of Jarrah wood paving blocks for use in connection with the L.C.C. tramways.

(A) 60,000, size 3 in. by 9 in. by 4 in. delivered to County wharf, Belvedere Road.
(B) 30,000, „ „ „ Deptford wharf.
(C) 10,000, „ „ „ Battersea wharf.
(D) 30,000, size 3 in. by 9 in. by 4½ in. delivered to County wharf.
(E) 10,000, „ „ „ Deptford wharf.
(F) 10,000, „ „ „ Battersea wharf.
(G) 30,000, size 3 in. by 9 in. by 4½ in., delivered to Parkhurst Road.
(H) 120,000, „ „ „ Metropolis wharf.
(I) 35,000, size 3 in. by 6 in. by 3¼ in., delivered to County wharf.
(J) 20,000, „ „ „ Deptford wharf.
(K) 5,000, „ „ „ Battersea wharf.
(L) 20,000, „ „ „ Metropolis wharf.

Price at per 1,000.

(i.) *Delivered by van.*

	A	B	C	D	E	F	G	H	I	J	K	L
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Millars' Karri & Jarrah Co. (1902), Ltd.	9 16 0	9 16 0	9 16 9	11 1 0	11 0 0	11 1 0	11 2 3	11 1 3	5 14 9	5 14 9	5 15 0	5 16 6
William Griffiths & Co., Ltd.	9 18 6	9 16 0	9 17 6	11 3 6	11 2 6	11 3 0	10 19 6	10 19 0	5 16 6	5 16 6	5 16 6	5 15 0
The Timber Corporation, Ltd.	10 2 6	10 2 6	10 2 6	11 6 6	11 7 6	11 7 6	11 3 6	11 3 6	5 17 6	5 17 6	6 0 0	5 18 0
The Improved Wood Pavement Co., Ltd.	—	9 12 6	—	—	10 17 0	—	—	—	—	—	—	—

(ii.) *Delivered by barge.*

	A	B	C	D	E	F	G	H	I	J	K	L
Millars' Karri & Jarrah Co. (1902), Ltd.	9 13 0	9 12 6	10 0 0	10 18 6	11 2 6	11 2 6	—	11 3 0	5 12 6	5 13 9	7 0 0	5 17 6
William Griffiths & Co., Ltd.	10 0 0	9 15 0	9 15 0	11 1 6	11 5 0	11 5 0	—	11 0 0	5 15 0	5 15 0	7 2 6	5 16 0
The Timber Corporation, Ltd.	9 19 0	9 19 0	10 5 0	11 2 0	11 10 0	11 10 0	—	11 5 0	5 15 0	5 16 0	7 5 0	6 0 0

The Highways Committee have accepted the tenders of Millars' Karri and Jarrah Co. for A, C, D, F, I, J and K; of W. Griffiths & Co. for G, H and L; and of the Improved Wood Pavement Co., Ltd., for B and E. In every case the delivery is to be by van.

LONDON—*continued.*

For erection of a waiting-room and convenience at Eltham tramway terminus, for the Woolwich Borough Council.

H. J. Vaughan	£385 10 0
F. W. Lowsby	350 0 0
S. A. Douglass	327 0 0
A. M. Fenn	326 0 0
A. Lawrence	320 0 0
Thomas & Edge	298 0 0
Lister & Co.	280 0 0

For the supply and erection of fencing over the southern outfall sewer between Church Manorway and Crossness.

Hill & Smith	£391 11 0
Bayliss, Jones & Bayliss	344 13 1
Bain & Co.	297 19 0
Rowland Bros.	292 18 0
T. W. Palmer & Co.	261 4 5
A. & J. Main & Co.	260 9 2
John Elwell, Birmingham (*accepted*)	242 7 3

LOUTH.

For carrying out sewerage works.

H. Holloway, Wolverhampton (*accepted*)	£13,412 8 3

SOUTHAMPTON.

For the erection of a shelter, convenience, store, and mess-room at Hollybrook.

W. Buck, jun. (*accepted*)	£520 0 0

For painting the railings inside and around the parks, &c.

Jenkins & Sons	£675 0 0
Saunders	567 12 6

Fresh tenders are to be invited.

WALES.

For the construction of new roads and drains at Blackwood (Mon.), for the Oakdale Navigation Colliery Co., Ltd., Blackwood. Mr. A. F. Webb, M.S.A., architect and surveyor, Blackwood.

Fudge	£4,987 1 1
George Smith	4,409 9 6
Evans & Murray	4,230 0 0
Oakley	4,150 0 0
Gregory Bros.	4,092 3 0
Davies & Williams	3,971 11 6
W. Friles	3,916 17 10
Ebbw Vale Building Co.	3,599 0 0
Barnes, Chaplin & Co.	3,530 0 0
Morgan	3,379 12 4
Brown	3,354 16 1
Collins & Co.	3,298 10 6
H. Smith	3,286 18 9
Jones & Jones	3,282 18 7
Bowditch	3,228 7 11
Treglown & Co.	3,153 19 10
Trentham	3,016 0 0
Clarke	2,900 0 0
Webb & Sons, Abercynon (*accepted*)	2,880 10 0

The Holborn Board of Guardians have been authorised to extend part of the Infirmary, at a cost not exceeding £4,700, in order to provide accommodation for the nursing staff.

Mr. G. T. Brown, F.R.I.B.A., has, at the request of the Sunderland Education Committee, amended the plans of the proposed alterations and extension to the Bede Collegiate School buildings, so as to meet the requirements of the Board of Education.

Mr. Albert Monk, of Edmonton, builder and contractor, whose successful tender of £178,000 was accepted for the new model dwellings for the Sutton Trust at Chelsea, died on Thursday, the 9th inst. We understand that his death will make no difference in the carrying out of the contract.

At a meeting held at the chapter-house of Salisbury Cathedral is was decided that the memorial to Bishop Wordsworth should consist of a recumbent figure of the Bishop in the Cathedral, and that any surplus funds should be devoted to the completion of the choir by canopies to the stalls.

The Whickham Council have decided to make application to the Local Government Board for sanction to borrow £2,600 for purchasing land for a public cemetery. The surveyor is to prepare plans and estimates for the erection of boundary fencing, chapels, entrance lodge, &c.

BIRMINGHAM ARCHITECTS AND THE CORPORATION.

IE General Purposes Committee of the Birmingham City uncil, at their meeting on Monday, received a deputation om the Birmingham Architectural Association, who pre- nted a memorial relating to the question of the execution of rks of architecture in Greater Birmingham. In their emorial the Association pointed out that the town planning ction of the Housing and Town Planning Act will involve estions of great importance from an architectural stand- int, and, therefore, they asked that a certain number of chitects of eminence in the city should be co-opted on the wn Planning Committee. They also pointed out that in e outside areas now included in the Greater Birmingham neme it has been the custom to employ practising architects, oecially for school buildings, and surveyors to prepare the antities for obtaining builders' tenders, and that it will a serious financial loss to the profession if this practice re discontinued. The memorial contended that the work ecuted hitherto in the outside areas, where proper care had en taken in the selection of suitable architects, would com- re favourably in expert planning, artistic aspect, and onomy of execution with those erected by official architects, d that it would be a loss to the general community if such thods were discontinued. They further requested in this rection that where buildings of special character were un- rtaken, such as training colleges, teachers' centres, or schools an unusual type, that the practice followed by many her authorities should be observed, and the work put out competition among architects practising in the city. urther, the memorialists asked that the standing order in gard to competitions for all buildings above the value of 0,000 should be observed in all suitable cases, and that, in ecial cases, the amount should be reduced. In view of the ct that in the past officials of the Councils, who had had no chitectural training, had advised various committees as the conduct of competitions, the memorialists submitted iat such a course was not in the best interests of the com- unity, from the standpoint of good architecture, sound anning, or economy, and suggested that in future the ser- es of a suitable architect should be employed to assist the mmittees in the preparation of the conditions of the com- tition, and in adjudicating upon the various designs sent . Finally, the memorialists pointed out that in the past tain buildings had been designed and carried out by officials the Corporation who had not had the training of an chitect, with the result that the artistic aspect of build- gs was apt to be overlooked or misunderstood.

Building operations in the city have, of course, principally ncerned the Education Committee, and they have employed e architect to supervise the erection of all new schools. In e districts to be added, however, the practice has been to row every new school open for competition, and the mem- rs of the Architectural Association are not only anxious at this system should be maintained in the added districts, t applied also to the present city area.

The memorial was discussed at considerable length, and entually the deputation were informed that, while the mmittee could not decide upon any definite action, as their riod of office was expiring, full consideration would be ven to the Association's proposals, which would also be ought to the notice of the other committees of the City uncil.

The *Birmingham Daily Post*, in a leader on the above emorial, makes the following comments:—

The memorial presented by the Birmingham Architectural ssociation to the General Purposes Committee of the City uncil contains points deserving of the serious considera- on which we have no doubt they will obtain. The chief oposition submitted to the committee was that in the out- le areas now included in Greater Birmingham it has been e custom to employ practising architects, especially for hool buildings, and it will be a definite financial loss to the ofession if such a practice is discontinued. The Education ommittee of the city have their own official architect, and if e architectural work in the added areas is given into his nds it will constitute a deprivation to local architects, who ight have secured it if put out to competition. Corres- ndence has appeared in our columns on this subject con- nding that the school buildings in the outside areas will mpare favourably in planning, artistic aspect, and economy execution with those erected by the city official architect. he memorialists likewise challenge comparison. There is no ecessity at this juncture to enter into the relative merits the school buildings of the inner and outer parts of the enlarged city. Something can be said in support of the official architect for specialised work like that of school designing. Whatever merits the system may have must be put against the obvious advantages of open competition. The decision turns upon the advantage to the community. Birmingham had already determined the method it regarded as the better; but, having absorbed areas not wedded to that method, in obvious fairness the views of the representatives of those areas ought to be consulted. In the readjustments involved by the enlargement of the city the Corporation have scrupulously, so far as we know, postponed where possible final decisions on matters that will affect the new wards until such time as the representatives thereof in the enlarged Council can express their views. This course can very properly be followed in the present instance. The existing General Purposes Committee will go out of office in a few days, and even if they had been in a position to take definite action upon the architects' memorial it was right they should leave the decision for their successors. But, while the question of school architecture represented the main ground of the memorial, there were other matters fittingly brought under the notice of the municipal authority. Architecture, as Mr. Unwin recently reminded us in his University lecture on Civic Design and Town Planning, must play a foremost part in improving the amenities of urban life. It is of prominent importance in the carrying out of schemes under the Housing and Town Planning Act. Consequently, the Architectural Association have weight in their request that a certain number of architects of eminence in the city should be co-opted on the Town Planning Committee to assist with their special knowledge in the discussion of any town-planning schemes that may be undertaken.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

CORNWALL.
Truro.—Two houses, The Crescent.
Tywardreath.—Three farmhouses and three sets of buildings; also alterations and adaptations to existing buildings at Lampetho Farm. Mr. W. H. Hill, county land agent, Truro.

DERBYSHIRE.
Brimington.—Parish Church Institute (£2,000).
Mellor.—Conservative Club.

DEVON.
Exeter.—University College.

DURHAM.
Blackpyne.—District Hospital.
Sunderland.—The Queen's Hotel: rebuilding for hotel and shops.

ESSEX.
Coggleshall.—Elementary School for 200 children.
Danbury.—Village Hall for 200 persons (£900). Messrs. Roddick, Colyin & Clark, architects.
Leigh.—St. Clement's Church enlargement.
Maldon.—Infants' School.
Southend.—St. John's Church completion (£3,675).
Springfield.—Chelmsford Star Co-operative Society: Store at Arbor Lane.

HAMPSHIRE.
Bournemouth.—Churches at Pokesdown and Queen's Park.

HEREFORDSHIRE.
Canon Pyon.—Parish Room. Mr. H. Skyrme (of Hereford), architect. Mr. C. Cooke (of Hereford), contractor.

HERTFORDSHIRE.
Rushden.—Factory additions, Rectory Road, for the Central Machinery Company.
Shop and house re-building, Queen Street and Rectory Road, for the Co-operative Wholesale Society.

KENT.
Ashford.—Shops, Godinton Road, for S. E. & C.R. Co. No. 60 High Street: rebuilding.
Ashford, South.—Adult Schools enlargement.
Margate.—Technical School, School of Art, Cookery, Laundry, and Handicrafts Centre (£5,000 to £6,000).

- Kent—*continued.*
  - *Mereworth.*—Cottages (£1,000).
  - *Sevenoaks.*—Nos. 156 and 157 High Street: additions.
- Lancashire.
  - *Blackpool.*—Public Baths.
  - *Bolton.*—St. Barnabas Church.
    - St. Margaret Church.
    - Two houses, Captain Clough Road, Smithills.
    - Elementary School, Wolfenden Street (£10,500).
    - Machine Shop, Folds Road.
    - Vicarage, Markland Hill, Heaton: additions.
  - *Wilmslow.*—Hawthorn Chapel restoration in the Parish Church.
- Leicestershire.
  - *Leicester.*—Factory rebuilding for Messrs. Rowley.
- Lincolnshire.
  - *Ashby.*—Church.
  - *Baston.*—Workmen's cottages (£990).
  - *Bourne.*—Swimming Baths (Coronation memorial).
  - *Dowsby.*—Workmen's cottages (£1,350).
  - *Horncastle.*—Police Court.
  - *Pointon.*—Workmen's cottages (£660).
  - *Rippingale.*—Workmen's cottages (£1,225).
  - *Sutton-on-Sea.*—Bungalow, Huttoft Road.
    - Four houses, Station Road.
- Middlesex.
  - *Hanwell.*—Carnegie Public Library extension.
- Monmouthshire.
  - *Abersychan.*—Council dwellings.
  - *Usk.*—Agricultural College.
- Norfolk.
  - *Briston.*—Three pair cottages.
- Northamptonshire.
  - *Brixworth.*—Houses.
- Northumberland.
  - *Cambois.*—Primitive Methodist Sunday School for 150 children (£700). Messrs. Cooke Brothers (of Blyth), contractors.
- Nottinghamshire.
  - *Nottingham.*—Cripples' Home (£900).
  - *Worksop.*—Church, Newcastle Avenue.
    - Infirmary, Kilton Hill: additions and alterations (£1,500).
- Shropshire.
  - *Bridgnorth.*—House in Paul's Pool Meadow.
    - Motor garage, St. John's Street.
  - *Clee Hill.*—Houses.
  - *Diddlebury.*—Farmhouse by the Common.
- Somerset.
  - *Brislington.*—Council School for 200 infants.
  - *Chard.*—Corn Exchange enlargement, Municipal Offices, &c. (£2,000).
- Surrey.
  - *Burhill.*—Whiteley Homes.
  - *Epsom.*—St. Barnabas Church.
  - *Guildford.*—Girls' secondary school, Farnham Road (accommodation for 250 girls). Messrs. Jarvis & Richards, architects.
  - *Richmond.*—"Star and Garter" Hotel: additions and alterations (£20,000).
  - *Woking.*—Goldsworth Council School: additional accommodation for 350 children.
- Sussex.
  - *Burgess Hill.*—Picture Palace, Cyprus Road.
  - *Chiltington, West.*—Council School: additions (£510).
  - *East Grinstead.*—Workhouse Infirmary alterations. Messrs. C. & H. Gasson, contractors (£224).
  - *Horsham.*—Grammar School: additions and alterations (£2,800).
  - *Pulborough.*—Eight working-class cottages, Mare Hill (£1,750). Mr. E. F. Farrington, council surveyor (of Arundel).
  - *Storrington.*—Council School: additions and alterations.
- Warwickshire.
  - *Birmingham.*—Women's swimming-baths (£11,000).
- Worcestershire.
  - *Droitwich.*—(Supplementary to October 13) Territorial Drill Hall, &c. Mr. H. P. Smith, architect.
  - *Oxenhall.*—St. Anne's Parish Church tower: restoration.
  - *Worcester.*—Laslett's Almshouses (three blocks), and chapel. Messrs. Lewis Sheppard & Son, architects. Messrs. Brazier (of Bromsgrove), contractors.
- Yorkshire.
  - *Hemsworth.*—Church School for 200 children.
  - *Hope.*—Council School, Edale Road.
  - *Moorthorpe.*—County Council School.
  - *South Elmshall.*—The Warde-Aldam Cottage Hospita Mr. E. H. Walker, A.R.I.B.A. (of Doncaste architect.

WALES.

- *Aberystwyth*—Isolation Hospital completion.
- *Bettws.*—School for 156 children (£2,600).
- *Cardiff.*—Cinema Theatre, Library Street and Cowbrid Road.
- *Cockett and Court Sart.*—Schools.
- *Cwm.*—Fifty workmen's dwellings. Mr. H. Portsmou architect.
- *Cwmrhydyceirw.*—School.
- *Gellyfaelog.*—Five concrete cottages (£500). Mr. Tha eray, deputy surveyor (of Merthyr).
- *Glynneath.*—School for 300 children (£4,225).
- *Merthyr.*—Joint Lunatic Asylum.
- *Newtown.*—Tuberculosis dispensary.
- *Ruthin.*—Technical Instruction Schools, Wells Street.
- *Sketty.*—School.
- *Swansea.*—Girls' Secondary School (municipal), for 1,8 scholars (£31,000). Mr. G. E. T. Lauren A.R.I.B.A. (of London), architect.
- *Trewyddfa.*—Fifty-three workmen's dwellings. Mr. Portsmouth, architect.

SCOTLAND.

- *Aberdeen.*—Congregational Church Hall: enlargemen
  - Robert Gordon's Technical College: improvement Schoolhill and Woolmanhill (£37,300).
- *Dumbarton.*—Poorhouse alterations (£2,600).
- *Dundee.*—Bannatyne Home of Rest for Women: ext sion.
- *Forgan.*—School re-building (£950).
- *Glasgow.*—Picture House, Renfield Street.
  - Lightbody Trustees' tenements, Cardross Street.
  - (See also Port Glasgow.)
- *Greenock.*—Six semi-detached cottages, Denholm Stre Mr. D. L. Carmichael, builder.
- *Newport.*—Post Office rebuilding, Pierhead.
- *Port Glasgow.*—Church Halls (two) and four classroon Accommodation for 840 persons.
- *Rattray.*—United Free Church, Balmoral Road.
- *Springfield.*—Lunatic asylum extension (£3,700). Mess Gillespie & Scott (of St. Andrews), architects.

GOODRICH HOUSE, HATFIELD.

Through the agency of Messrs. Braund & Oram the sale h been effected of Goodrich House, an interesting Queen An building immediately facing Hatfield Parish Church, a surrounded on three sides by Lord Salisbury's property, Ha field Park adjoining its northern boundary. The purchas is Mr. F. W. Speaight, of Morton House, Hatfield, and it understood that the new owner intends entirely reconstru ing the property in such a way as to preserve all the featu that may be of either antiquarian or architectural intere

The house derives its name from Bishop Goodrich, the la of the Bishops of Ely who resided in the old episco palace that adjoins the property, and it was he who ga Henry VIII. that property in exchange for the site of I lington Priory and other lands nearer to his Ely palace.

The contract for the reconstruction, which will start Monday next, has been secured in open competition by M Newton, of Hitchin, and it is being carried out under t supervision of Mr. A. Winter Rose, architect, acting in c laboration with the owner, and who so successfully last ye carried out the reconstruction of Morton House.

AUSTRALIAN MARBLE.

There are to be seen at the office of the Victorian Age General, Melbourne Place, Strand, specimens of mar from Australia. These are specimens obtained from a quar situated in Gippsland, Victoria. The deposits occupy space of about forty acres, showing, as they do, an endl variety of constitution, texture, colour, and marking. The specimens may be seen at any time. Mr. Gair, of M bourne, who brought the specimens, will be in London fo few weeks, and will gladly give any information to perso requiring the same. Specimens of white marble will short arrive and be on exhibition at the Agent-General's office.

The Lurgan Town Council (Ireland) are prepared receive from competent architects their terms for designin planning, and carrying out all work incidental to the buil ing of about fifty artisan dwellings under the Housing the Working Classes Act. Applications must be made October 28.

THE EVOLUTION OF THE DWELLING-HOUSE AND SOME REFLECTIONS THEREON.

(Concluded from last week.)

The Block Dwelling.—This covers a large variety of buildings, the essential feature of which is a many-storeyed house with common approach (in the less modern ones, common conveniences), providing accommodation for a large number of separate families. By earlier housing reformers this form of dwelling was thought to provide a remedy for all our housing ills, and especially for two difficulties facing all designers of buildings in large towns—namely, the extreme scarcity of land for building sites and the lack of quick and cheap means of transit from the suburbs to the centre where the dwellers have to work. Therefore, this type of building was largely resorted to in London and other large cities. In London alone nearly one-third of a million of people live in them.

There is now a growing feeling against the "block dwelling"; first, on account of the fact revealed by vital statistics that they are seriously detrimental to the health of the occupants. This is proved by many well-known authorities, amongst others, in the report of the proceedings at the annual meeting of the Glasgow Dwellings Company (October 1906), where, in a total number of inhabitants in houses, most of which are blocks, "The average death-rate for the whole of the houses was 27.6, whilst the average for Glasgow was 17.9."

Similar testimony is given by several eminent medical officers of health. The reason for this bad bill of health is attributed to the lack of sunshine and fresh air, especially in the lower storeys of the block dwellings, the many stairs which have to be climbed up and down before work or recreation can be reached, and the difficulty of efficient isolation of the serious infectious but non-notifiable diseases, such as consumption, whooping cough, measles, &c. Another objection is that the block dwellers do not get the comfort and decency which the separate home gives its occupants. A writer recently said "Privacy is impossible for those who are forced to occupy block dwellings." Little affection seems to gather round them. The common staircase, the common dust-shoot, the common wash-house reveal to the general public the manifold secrets of domestic life.

It is in vain that a mother, careful for the training of her children, attempts to screen them from the influences around. The offensive habits and abusive language of the neighbours cannot be shut out; the children encounter the drunkard on their common stair. The street or the common courtyard is the only playground, and, consequently, they become ruder in manner, coarser and noisier in their habits than the boys of the same grade in smaller houses.

Another very serious drawback to the block dweller's health is the absence of quietude until late at night; there is no rest until all the family have retired, and no quiet until the neighbours have done likewise. Disturbance comes early in the morning. To the consequent loss of sleep may be accounted a large amount of nervous weakness, and when sickness comes these conditions must have a very bad effect. Can we imagine what it must mean to a woman attempting to nurse a delirious husband or attend to the wants of the family of six or seven in two rooms opening out on to a common stair or passageway?

The Tenement House.—In large towns many houses which formerly were the private residences of well-to-do people have, in consequence of the removal of their late owners or occupiers to more genial surroundings in the suburbs, or more distant places, on account of the district becoming more industrial in character, become tenement houses; which means that the house built to accommodate persons of one family has become a house let in lodgings for a number of families. The history of such a house is generally a dismal record of deterioration. It is often overcrowded, ill-ventilated, with insufficient sanitary accommodation, and inadequate provision for washing and water supply—in fact, everything tending towards every kind of domestic insanitation—the worst form of insanitation. The absence of pantry accommodation necessitates the bringing into use of all kinds of unsuitable receptacles for food, such as a cupboard under the stair, a portion of the coal store, or some old box. The majority of the occupants are without cooking ranges in their quarters other than a small open range, which makes the proper cooking of the food available quite impossible; in fact, this class of dwelling is but little improvement, if any, on the older class of block dwellings. In London no less than one million people reside in such dwellings. What chance in such surroundings is there for the proper development of that home life on which so much depends for the children?

The Cottage Flat.—This is another type of working-class dwelling; it is a two-storeyed building, containing on the ground and first floors a complete self-contained flat, each built for one family only, with a separate entrance for each from the street. This type of dwelling gives the privacy of a real home, and all the sunshine and fresh air which the site can receive are secured to the occupants. Next to a separate cottage for each family this arrangement is best, but in large towns and cities, if the cost of land, &c., is prohibitive, surely it might, where insanitary areas are cleared be adopted even if it did involve a charge on the community through the rates; better to pay it in poor, general, district, or borough rates, as the case may be, than in high sick- and death-rates. In the city of Birmingham, since 1892, cottage flats have been built by the Corporation which let at 5s. 6*d.* to 6*s.* 6*d.* per week. It is a suitable type of building for erecting in the inner suburbs of towns, and successful schemes are in operation at Hornsey, Richmond, and other places.

The most desirable type of dwelling for the worker and his family is the separate house; its advantages are too apparent to need enumerating.

Apart from, yet frequently along with, the defects of structure, there exists the very great evil of overcrowding. This may be measured in two ways—namely, either by the number of houses built upon an acre of ground, or by the number of persons living in a single room. The former method of measurement is misleading if applied to areas where the houses are unevenly distributed. In York, where the average number of persons per acre for the whole city is less than in the standard laid down by the late Sir Benjamin Ward Richardson (25 persons per acre), there are specific districts where the number of persons per acre rises to ten and twelve times the standard number. York is not exceptional in this respect; there are areas in many large towns where the standard is exceeded twenty-fold, and in Edinburgh it is even worse than this.

Using the latter method of measurement we find that at the Census of 1901 in London there were some 150,000 one-room tenements, 17,000 of which were occupied by four, or more than four, persons.

The effect of overcrowding is shown in the following table taken from the annual report for 1906 of the Medical Officer of Health for Finsbury:

FINSBURY, 1903 TO 1906.

Death-rates per 1,000 *Persons from All and Certain Causes in Houses or Tenements of Several Sizes.*

		All Causes.				Phthisis.			
Size of Tenements.	Census Population, 1901, 101,463.*	Death-rate per 1,000 1903.	Death-rate per 1,000 1904.	Death-rate per 1,000 1905.	Death-rate per 1,000 1906.	Death-rate per 1,000 1903.	Death-rate per 1,000 1904.	Death-rate per 1,000 1905.	Death-rate per 1,000 1906.
One Room Tenement	14,516	38·9	40·6	32·7	39·0	4·5	4·5	3·5	3·4
Two Room Tenement	31,482	22·6	21·9	19·5	22·5	2·8	2·2	2·1	2·3
Three Room Tenement	21,280	11·7	14·7	12·3	14·8	1·2	2·3	1·3	1·4
Four Room Tenement and upwards of 4 Rooms...	33,185	5·6	7·5	6·6	6·4	0·63	1·2	0·81	0·93
The Borough Death Rates	—	19·8	21·1	18·9	20·7	2·2	2·5	2·1	2·3

* For the purposes of this table it has been necessary to use the Census population (1901) for all four of the years included in the table. It should not, however, be forgotten that the population is declining, and the death-rate for each year in this table are, therefore, approximate only.

The question naturally arises: Why does all this overcrowding of dwellings exist? Well, primarily, the answer must be poverty—due to many causes, true; in fact, the Royal Commission of 1884 classified the "unquestioned causes" as follows:

(1) Poverty, the relation borne by wages to rent.
(2) Demolition of houses inhabited by the working classes.
(3) Relations between owners and tenants.
(4) Remissness of local authorities in the administration of the law.

Added to their report was the following statement: "What at the present time is specially required is some motive power, and probably there can be no stronger power than public opinion."

Twenty years later similar conclusions were arrived at by the Physical Deterioration Committee, who said "that it is not so much the instrument that is at fault as the impulse behind it." Let us hope that public opinion has been or will be so aroused that local authorities anxious to carry out the powers they possess may be assisted to do so; and that those local authorities who are remiss may be compelled to take what action may be necessary.

VARIETIES.

Mr. John Douglas, architect, of Chester, who died recently, left property valued at £32,088.

The Reigate Board of Guardians are considering a recommendation to provide a new hospital for seventy-two beds at the workhouse.

Mr. E. C. Poole, surveyor to the Southampton Harbour Board, has prepared alternative schemes for re-decking the Royal Pier at a cost of from £1,000 to £4,000.

The Lymington Town Council have instructed their borough surveyor to prepare plans for converting Nos. 117 and 118 High Street into municipal offices. A proposal that the work should be put out to competition was lost.

Mr. J. M. Dick Peddie, architect, Edinburgh, has prepared plans for new county offices proposed to be erected in English Street, Dumfries, at a cost of £21,000. These plans have been approved by the Dumfries County Council.

The Turton Urban District Council have appointed a sub-committee to consider the plans and estimates of a proposed extension at the Eagley Sewage Works at a cost of £7,000.

The City Council of Leeds give notice of their intention to provide (1) a new public elementary school for about 600 children in the neighbourhood of Harehills Lane and York Road, and (2) an enlargement of the Bramley Council School accommodating about 400 extra children.

Mr. Frederick Braby, the head and founder of the well-known firm of Frederick Braby & Co., Ltd., of Fitzroy Works, Euston Road, London, and also at Deptford, Glasgow, Liverpool, Bristol and Falkirk passed away on the 9th instant, at his residence, Bushey Lodge, Teddington, after a short illness, aged eighty-two.

The Hull Corporation Property Committee recommend the Parliamentary Committee to include in the next Parliamentary Bill power to construct a new North Bridge, 65 feet wide, at a cost of £56,000. The plans were prepared by the City Engineer.

Mr. R. Catterson-Smith has been appointed by the Museum and School of Art Committee of the Birmingham City Council director of art education to control all art education for which the Museum and School of Art Committee is responsible. The salary is said to be £1,000 per annum.

A scheme to sewer the populous areas in Sutton and Bridley Ward, and those properties on Hook Heath which cannot be drained into the present gravitation sewer, at an estimated cost of over £10,000, was brought before the Woking Urban District Council at their last meeting. The plans had been prepared by the surveyor (Mr. G. J. Wooldridge).

The Streets Committee of the Bolton Corporation last week resolved that the draft bye-laws with respect to new streets and buildings be approved, and a copy be furnished to the Master Builders' Association for any observation they may wish to make thereon, and also to a nominee of the architects and surveyors practising in Bolton.

Mr. Joseph Norris, cabinet and chair manufacturer, Smeaton Street, Hull, supplied his tip-up chairs (a speciality) in the Corporation Baths, Walthamstow; in the gallery of the Peter Street Wesleyan Church, Canterbury; and in the Primitive Methodist Sunday Schools, Brightside, Sheffield.

The Warrington Education Committee have agreed that application be made to the Local Government Board for sanction to the purchase of about two acres of land in Lovely Lane as a site for a public elementary school. The committee will shortly have three or four new schools in course of erection.

At this week's meeting of the Doncaster local authority the tender of Messrs. Arnold & Son, of Doncaster, amounting to £10,464, for carrying out the sewerage schemes at Adwick-le-Street, Owston, and Skellow, was accepted; also the tender of the Combined Concrete Constructive Co., Ltd., for raising the water reservoir at Conisborough in reinforced concrete, for £794.

At the half-yearly meeting of the National Association of Master Plasterers, held at Manchester on the 14th inst., it was decided, in view of statements that the National Insurance Bill was to be passed during next Session practically unaltered, to recommend all the members to decline to give any assistance to work the Bill.

The Government recently acquired a six-storey block of buildings with a frontage in Basinghall Street, Leeds, as a site for the first telephone exchange to be provided by them after taking over the National Telephone Company on January 1, 1912. The work of demolition began this week. It is understood that the new exchange is to embody the latest ideas in that class of building.

Fritwell Manor, Banbury, the residence of the late Mr. Thomas Garner, is to be sold by auction. The manor goes back to Saxon times, but the existing building dates from the late sixteenth century. In 1892 Mr. Garner secured a lease of the house, which he described in "The Domestic Architecture of England during the Tudor Period." Considerable time and money was expended on its careful restoration.

A sum of £1,300, which remains over from the Liverpool Coronation Celebrations Fund, is to be spent on life-size portraits of King George and Queen Mary, which are to be hung in the Town Hall. The King and Queen have consented to the proposal, and named two artists to carry out the work—Sir Luke Fildes, R.A. (a Liverpool man), to paint the King's portrait, and Mr. W. Llewellyn, A.R.C.A., the Queen's.

Quantity surveyors practising in Newcastle who are desirous of having their names submitted to the Education Committee for appointment in connection with the proposed new school at Walker Gate must apply to the Secretary, Education Offices, Northumberland Road, not later than October 23, stating their charges for: (*a*) taking out the quantities; (*b*) lithography.

The death is announced of Mr. Robert Hamilton-Paterson, ordained surveyor, architect, and valuator, Edinburgh, of the firm of Messrs. Hamilton-Paterson & Paterson, York Place, at the age of sixty-seven. Mr. Hamilton-Paterson set up in business as an ordained surveyor in Edinburgh forty years ago, and later became best known as an architect for breweries and maltings.

Plymouth Town Council Special Works Committee last week had before them the amended plans of the Education Committee for the erection of school buildings on the site of the Public School in Cobourg Street, the original plans having been disapproved, inasmuch as they were not in conformity with the by-laws. The amended plans were now approved, subject to the adjustment of certain details.

Mr. J. S. Beaumont, B.A., who graduated at Manchester University with first-class honours in architecture last July, has been awarded a Gilchrist Studentship; the nomination is made by the Committee of the British School at Rome, and the Gilchrist Trustees have approved this nomination. The studentship is an open one for competition among all suitable candidates who have pursued a sufficient course of preliminary study. It is tenable for one year, and is of the value of £75. The holder of the studentship is enrolled as a student of the British School at Rome and is expected to spend a period of at least five months in Rome or in Italy pursuing an approved course of architectural and historical study.

The foundation-stone of the new church of St. Mary, Horden Colliery, was laid last week. The church, which is the gift of Colonel Burdon, is to seat 600 people. It will stand on a commanding site in Blackhills Road, and will be cruciform in style, with a tower 65 ft. high at the crossing of the nave and transepts. There will also be a side chapel. The total length of the church will be 160 ft., and the nave will be 28 ft. 6 in. wide. The material to be used for the exterior is rock-faced artificial stone, and internally the nave and chancel will be spanned by a waggon roof. The contractors for the church are Messrs. William Pearson & Son, West Hartlepool, and the architects, Messrs. Joseph Potts & Son, Newcastle and Sunderland.

To-day (Friday) the foundation-stone is to be laid in Edinburgh of a new college for the training of teachers. The site is that of the old Moray House Training College, which has been enlarged to a total area of 2.7 acres at a cost of over £20,000. This area will also suffice for the demonstration school to be erected later. The main or central building is now in course of erection. The plans show a building three storeys in height, occupying an area of about 40,000 square feet, and arranged in the form of a hollow square, with an interior court measuring 92 feet by 92 feet. The frontage is towards the South Back Canongate, and is about 200 feet in extent. When it is completed the new building will provide classrooms for 800 students, offices for the administrative staff, and meeting-rooms for the committees. A hall for the accommodation of the whole of the students at one time is provided for, and in addition to the ordinary classrooms provision is also made of a department of school hygiene, which includes lecture theatre for 150 students. The cost of the building is estimated at about £50,000. The architect of the new training college is Mr. A. K. Robertson, 29 Hanover Street, Edinburgh, and the contractors are Messrs. G. & R. Cousin, Edinburgh.

VENTILATING FANS.

One of the sections of the Factory and Workshop Act deals with the regulation of laundries; and, among many other requirements, it sets forth that in the case of every laundry worked by steam, water, or other mechanical power, "a fan or other means of a proper construction must be provided, maintained, and used for regulating the temperature in every ironing-room, and for carrying away the steam in every washhouse in the laundry." The problem is a familiar one to laundry engineers and others who have to cope with conditions under which saturated steam is passed into a confined space before it can be extracted. There have been in the past many attempts at its solution, with widely-varying results. It would seem as if at last means have been devised capable of completely coping with the problem.

Some months ago the authorities of a county asylum were considerably exercised by the fact that when their washhouse was in operation the big room became filled with steam. Not only did it impede the vision of the workers, but it also condensed on the roof principals and other surfaces, and this was felt to be highly detrimental to the well-being of the building and its fittings. Under these circumstances several firms were invited, on the advice of a consulting engineer, to prepare and submit in competition to the county authorities a scheme or schemes for overcoming the difficulty. One of the most important conditions was that the plant should be capable of clearing the washhouse (which is a large one with a great number of machines) of all steam in two and a half minutes.

After full consideration it was decided to accept the scheme sent in by Messrs. John Gibbs & Son, of 72-76 Guke Street, Liverpool. This firm are warming, ventilating, electrical, and consulting engineers, who may be said to have made a specialty of air-propelling and ventilating fans, and who were therefore especially suited to cope with troubles of the sort above mentioned. The installation advised consisted of several of their patent open-bladed fans and one of their "Peerless" blowing and exhaust fans, together with their patent entirely-enclosed dustproof motor. Hot air is taken from the top of the drying chambers (where it was previously wasted) and blown through graduated ducts into the washhouse. The "Peerless" blower carries the hot air to the far side of the room, where it is discharged from a number of openings in the graduated tube. The waste steam is removed by three fans—two of which are belt-driven and the third is fixed in the roof.

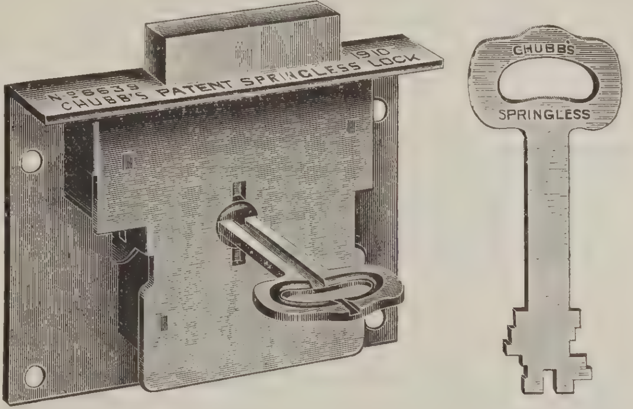
After the plant had been installed it was subjected to a special test in accordance with the conditions of contract in the presence of the asylum officials. The results were completely satisfactory. At the expiration of two minutes fifteen seconds all steam had been completely cleared from the far side of the big washhouse, and in a further fifteen seconds no trace of steam remained anywhere. This success should mark the end of a trouble which has too long attended the use of laundry machinery on a large scale. We understand that the Lunacy Commissioners, after inspecting the installation, made a special and laudatory reference to it in a report.

CHUBB'S PATENT SPRINGLESS LOCK.

There is about to be put on the market by Chubb & Son's Lock and Safe Company, Ltd., 128 Queen Victoria Street, E.C., a lock designed on a new principle. Not only is it without springs, but without substitutes for springs such as weights. The chief use of springs is to press the tumblers or their equivalents in one direction so that they may be in contact with the key as it is being used, and return to rest when the key is removed.

In this new Chubb's Lock the detainers are not tumblers, levers, pins, or discs, but pieces shaped something like the letter U with arms at right angles to the sides of the U. These pieces slide in a channel fixed to the bolt, and when locked one arm of each piece is in front of the end of the rim to prevent the inward movement of the bolt.

The key, made of flat metal, is stepped on both edges (as shown in our illustration), and the distance across any pair of opposite steps is equal to the distance between the parallel sides of the U. The key enters between the sides of the U, and as it is turned the longer steps move the U pieces their required distances, one way or the other, from the centre of the key.



When the key is at right angles to the sides of the U pieces all the steps on both sides of the key are in contact with the sides of the U, and all the ends of the U pieces are just clear of the ends of the rim, so that they form no obstacle to the inward movement of the bolt. If the key be further turned the bolt begins to move by the action of the carrier which is taken round by the key. Just before the movement of the key is completed, when the bolt is in and the key steps are leaving the U pieces, the scatterer begins to act. This scatterer is a part of the carrier, and is so shaped as to move the U pieces in both directions into positions very different from those at which the lock will open.

When locking the movements are in the reverse direction but otherwise the same as when unlocking.

The important factors of security are present. Underlifting and overlifting are possible as in all good locks, and take place when an attempt is made to pick the lock or a wrong key is used. If underlifted a U piece catches at one end on the rim, and if overlifted on the other.

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It is proposed to erect a new concert hall in Piccadilly for Mr. T. Arthur Russell, the well-known concert agent. The estimated cost is £85,000.

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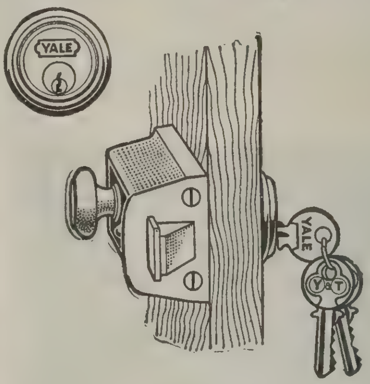

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EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Bolton.—Jan. 6.—The Lancashire and Cheshire Miners' Federation invite architects in independent practice within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1s. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton. N.B.—The time for sending in applications and designs has been extended from Dec. 1 to Jan. 6.

Bristol.—Oct. 31.—The Grand Hotel Company (Bristol), Ltd., are prepared to receive from architects and surveyors plans for proposed alterations in the hotel to provide additional bedrooms. Three premiums will be awarded. The architect in submitting his plans and designs must give the approximate cost of the proposed additions, as it will be taken into consideration. Mr. Frederick A. Jenkins, secretary, 44 Corn Street, Bristol.

Glasgow.—Nov. 6.—The Glasgow Provincial Committee propose to erect at Jordanhill, Glasgow, a Training College to accommodate 1,200 students, and to aid them in selecting a limited number of architects to compete for the intended work, they invite architects willing to take part in the competition to send in their names by Nov. 6, with twenty copies of a statement containing such information as they may think likely to advance their claims. Canvassing will be a disqualification. Mr. D. Macleod, Director of Studies, Technical College, Glasgow.

Hastings.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1s. deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.—N.B. The time for sending in applications and designs has been extended until December 30.

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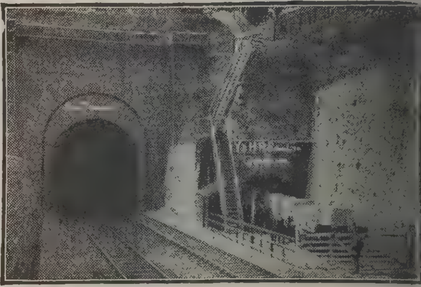

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London.—Oct. 31.—The Metropolitan Borough Council of St. Marylebone invite designs for new municipal buildings in Marylebone Road. Deposit £1 1*s*., which will be refunded on receipt of a bona-fide design or return of conditions within one month of receipt. All particulars from Mr. James Wilson, Town Clerk, Town Hall, Marylebone Lane, Oxford Street, W.

Rochdale.—Dec. 22.—The Board of Management of the Infirmary invite architects practising in Rochdale prior to January 1, 1911, to submit plans, designs, and estimates for extending the present buildings. Conditions of competition, with other information, together with instructions to architects, can be obtained on application to the secretary. An assessor has been appointed by the committee. Mr. T. Elvyn Kershaw, secretary, Secretary's Office, the Infirmary, Rochdale.

Sale.—Nov. 4.—The Sale and Ashton-upon-Mersey District Administrative Sub-Committee for Education invite architects practising within a radius of 20 miles of Manchester to make application for entry to a limited competition for designs for the proposed Council schools at Sale and Ashton-upon-Mersey, each of which is intended to accommodate 300 children. The county "regulations for the remuneration, &c., of architects engaged to design and superintend the erection of school buildings in the county" will be observed in appointing an architect. Applications should be sent on or before Nov. 4 to Mr. Walter Taylor, clerk to the Sub-committee, Public Free Library and Technical School, Sale.

Stockport.—Nov. 6.—Architects who would be willing, if invited by the Guardians of the Stockport Union, to submit competitive designs of new buildings for mental patients (about 250 beds), to be erected in connection with their infirmary at Stepping Hill, near Stockport, are requested to submit their names not later than Nov. 6, together with such information as they may consider likely to advance their claims to be admitted to the competition. Premiums of £100, £50, and £25 will be awarded, and a professional assessor will be employed. Mr. Charles F. Johnson, clerk to the Guardians, Union Offices, Stockport.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Wales.—Nov. 30.—The Cardiff Education Committee invite designs and estimates for a technical institute proposed to be erected in Cathays Park. Mr. J. S. Gibson, architect, will act as assessor. Full particulars will be sent to architects on application, accompanied by a deposit of £2 2*s*., which will be returned to all architects submitting bona-fide designs or who return the conditions within six weeks. Mr. J. Jackson, director of education, Education Offices, City Hall, Cardiff.

CONTRACTS OPEN.

Alderman's Green.—Oct. 30.—For erection and completion of three blocks of houses, four to each block, at Alderman's Green, near Coventry, for the Coventry Perseverance Co-operative Society, Ltd. Mr. W. H. Hattrell architect, 23 Hertford Street, Coventry.

Aspatria.—Oct. 31.—For erection and completion of a dwelling-house in Station Road. Mr. E. Wilson, jun., 4 Brough Street, Aspatria, Cumberland.

Bexhill.—Nov. 23.—For erection of infants' school. (Mr. H. P. Burke Downing, F.R.I.B.A., architect, 12 Little College Street, Westminster, S.W.) Send applications and £2 2*s*. deposit by Nov. 4 to Mr. Arthur B. Lawson, secretary, Education Offices, Bexhill. (See advertisement.)

Bradford.—For erection of spindle works, Mount Street. Mr. T. Riley, architect and surveyor, Lidget Green.

Colchester.—Nov. 6.—For the removal of the dwarf wall, palisading, &c., on church properties in Eld Lane, and building new wall and reinstating the palisading, &c., to the new line agreed upon. Mr. H. Goodyear, A.M.I.C.E., borough engineer and surveyor, Colchester.

Dipton.—Nov. 2.—For the several works required in erection and completion of presbytery and caretaker's house, near Dipton. Send names by Oct. 28 to Mr. G. T. Wilson, L.R.I.B.A., architect, 22 Durham Road, Blackhill, Co. Durham.

Driffield.—Oct. 31.—For repairs to Cruckley Bridge, between Brigham and Foston, for the Driffield Rural District Council. Mr. T. Casson Beaumont, surveyor, Driffield, Yorks.

Edinburgh.—Oct. 31.—For the erection (main contract) of the new administration block at the Royal Scottish Museum, for the Commissioners of H.M. Works and Public Buildings. Tenders are required for the whole work, and not for separate trades. Deposit £1 1*s*. H.M. Office of Works, 3 Parliament Square, Edinburgh.

Erith.—Oct. 31.—The London County Council invites tenders for the construction of an additional engine-house, &c., at the Southern Outfall Works, Crossness, in the Urban District of Erith, Kent. Send £10 deposit to the Cashier of the Council. Mr. Maurice Fitzmaurice, C.M.G., the Chief Engineer of the Council, the County Hall, Spring Gardens, S.W.

Fartown.—Nov. 3.—For the various works required in erection of a block of four model cottages on the Avenues Estate, Fartown, Yorks. Messrs. Lunn & Kaye, architects and surveyors, Huddersfield.

Fartown.—Oct. 30.—For the various works required in erection of four artisans' dwellings, Avenues Estate, Fartown, Yorks. Send name and address by Oct. 30 to Messrs. J. H. Hall & Son, architects and surveyors, Exchange, Huddersfield.

Folkestone.—Nov. 16.—For the work in connection with erection of the Harvey Grammar School for 150 boys in Cheriton Road. (Mr. E. Finn, architect, 19 Watling Street, Canterbury.) Send names and £1 1*s*. deposit at once to Mr. H. J. Moody, quantity surveyor, 5 Cheriton Place, Folkestone.

Glossop.—For providing and fixing a new floor in the Norfolk Schools, Old Glossop. Rev. C. D. Hart, Glossop Vicarage, Old Glossop.

Houghall.—Nov. 1.—For the construction of brick and concrete foundations and drains for a new ward block and mortuary, &c., the supplying and fixing of stoves, range, baths, lavatories, w.c.s, sinks, hot and cold water pipes and fittings; and the carrying out of certain small alterations to the existing hospital building at Houghall Hospital, near Durham. Mr. G. Gregson, surveyor, 38 Saddler Street, Durham.

Huddersfield.—Oct. 30.—For various works in pulling down, setting back, and rebuilding of premises situate at the junction of Carr Pit Road and Wakefield Road. Mr. K. F. Campbell, M.Inst.C.E., borough engineer and surveyor, 1 Peel Street, Huddersfield.

Ipswich.—Nov. 2.—For widening the Seven Arches bridge. Mr. E. Buckham, borough surveyor, Ipswich.

Ireland.—For alterations and additions to "Beaulieu House," Drogheda. Deposit £3 3*s*. Mr. S. Wilson Reside, C.E., architect, Margaret Square, Newry.

Ireland.—Nov. 4.—For the erection of a Presbyterian Church in Waterford. Mr. T. Scully, B.A., B.E., architect, Waterford. Deposit £2 2*s*. Mr. A. F. Torrie, secretary of Committee, "Rosemount," Waterford.

Ireland.—Nov. 4.—For erection of a convent and chapel for the Sisters of the Presentation Order, Tralee, co. Kerry. Deposit £1. Mr. S. F. Hynes, F.R.I.B.A., architect, 5 South Mall, Cork.

Isle of Man.—Oct. 30.—For erection of a block of dwellings in Lord Street, Douglas, for the Douglas Town Council. Mr. F. Cottle, C.E., borough surveyor, Town Hall, Douglas.

King's Lynn.—Nov. 2.—For alterations at the isolation ward of the workhouse. Messrs. Jarvis & Sons, architects, Lynn.

London.—Nov. 2.—For the provision of extra ventilation to roofs of laundry at the St. John's Hill Infirmary, for the Wandsworth Board of Guardians. Mr. F. W. Piper, clerk, Union Offices, St. John's Hill, Wandsworth, S.W.

London.—Nov. 6.—For supply and erection of two coal bunkers at the electric-lighting station, Tottenham Lane, Hornsey, for the Town Council. Mr. E. J. Lovegrove, borough engineer and surveyor, Municipal Offices, Highgate, N.

London.—Nov. 13.—For erection of new offices for the Board of Agriculture and Fisheries. Deposit £3 3*s*. Mr. H. A. Collins, A.R.I.B.A., at H.M. Office of Works, &c., Storey's Gate, S.W.

Lydiard Millicent.—Oct. 30.—For erection of a disinfector house and disinfecting apparatus at the isolation hospital, Stone Lane. Mr. R. J. Beswick, M.S.A., architect, 10 Victoria Road, Swindon.

Mereworth.—Oct. 30.—For erection of six cottages at Kent Street for the Malling Rural District Council. Deposit £1 1*s*. Mr. F. J. Allison, clerk, Council Offices, West Malling, Kent.

Morley.—Oct. 30.—For the bricklayer's, joiner's, and plumber's work required in alterations and additions to Market Buildings. (One contract.) Mr. T. A. Buttery, L.R.I.B.A., architect, Queen Street, Morley, and 1 Basinghall Square, Leeds.

Newbridge.—Nov. 11.—For proposed improvements to playground and ventilation at the Newbridge Council Schools, Cornwall. Mr. S. Hill, architect to the Committee, Green Lane, Redruth.

Newton Abbot.—Nov. 7.—For additions to the nurses' home and laundry at the workhouse. Mr. Samuel Segar, architect, Union Street, Newton Abbot, Devon.

Nottingham.—Nov. 2.—For structural alterations to their stores in Woodborough Road, for the Gas Committee. Deposit £1 1*s*. The Gas Engineer's Office, George Street, Nottingham.

Ord (Berwick).—Nov. 4.—For repairs to wood floor, also for two new fire grates, &c., and fixing same at East Ord Council School. The Head Teacher, Ord School, Berwick.

Porthcawl.—Nov. 4.—For the erection of two houses in Suffolk Place. Mr. D. Griffiths, M.S.A., architect, Dock Street Chambers, Porthcawl.

Portland.—Nov. 18.—For reslating the roof, laying a cement concrete floor, and other work, at the R.G.A. Drill Hall, Easton Road. Mr. F. T. Maltby, A.M.I.C.E., architect and surveyor, Dorchester.

Prestwich (Lancs).—Nov. 17.—For erection of an infirmary for female patients at the County Lunatic Asylum. Deposit £2 2*s*. Mr. T. Chadwick, A.R.I.B.A., architect, 16 Princess Street, Manchester.

Radcliffe.—Nov. 7.—For the erection and completion of sub-station at the electricity works, Lomax Street. Deposit £1 1*s*. Mr. W. L. Rothwell, engineer, Council Offices, Radcliffe, Lancs.

Reading.—Nov. 17.—For the construction of a concrete bathing place, together with campsheathing, footbridges, buildings, galvanised iron screen fences, and other works in connection therewith, at Coley, Reading. Mr. J. Bowen, A.M.I.C.E., borough engineer and surveyor, Town Hall, Reading.

Rochester.—Nov. 3.—For erection of Rochester new post office, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. The Postmaster, Rochester, and H.M. Office of Works, &c., Storey's Gate, S.W.

St. Albans.—Nov. 2.—For erection of six pairs of semi-detached residences for asylum attendants in the grounds of the Middlesex County Asylum, Napsbury. Mr. H. T. Wakelam, county architect, 63 Victoria Street, Westminster, S.W.

Salford.—Nov. 15.—For new buildings, boiler, engine, and machinery at the Agecroft depôt for slab-making plant, for the Corporation. Building Surveyor, Town Hall, Salford, and Superintendent, Lighting, &c., Department, Wilburn Street, Salford.

Scotland.—Oct. 30.—For alterations and repairs on the offices and water supply of the Drumlemble School, Campbeltown. Mr. Maxtone, Campbeltown.

Southsea.—For erection of the Apollo Theatre, Albert Road. The Apollo Kinematic Theatre, Southsea, Ltd., 2 King's Terrace, Southsea.

Stakeford.—For erecting a Council school to accommodate 396 scholars, at Bedlington, Stakeford. Send names and £2 2*s*. deposit by Nov. 3 to Mr. C. Williams, secretary to the Northumberland Education Committee, The Moothall, Newcastle-on-Tyne.

Stanwell.—Nov. 10.—For erection of the various buildings and other appurtenant works in connection with the isolation hospital for infectious diseases at Stanwell, Middlesex, for the Staines Joint Hospital Committee. Deposit £5 5*s*. Mr. G. W. Manning, architect, London Road, Ashford, Middlesex.

Tidworth (Hants).—Tenders are invited from builders experienced in reinforced concrete construction for proposed Roman Catholic church at Tidworth Barracks. Deposit £1 1*s*. Mr. G. L. W. Blount, architect, 39 High Street, Salisbury.

Tredington.—Dec. 2.—For erection of an isolation hospital with outbuildings and for alterations and additions to the existing hospital at Tredington, near Tewkesbury. Deposit £1 1*s*. Mr. J. Villar, F.S.I., M.S.A., architect, 5 Essex Place, Cheltenham.

Trowbridge.—Nov. 14.—For erection of a Council school at Trowbridge, Wilts. Deposit £5. Mr. J. G. Powell, county surveyor, Trowbridge.

Uxbridge.—Oct. 30.—For the necessary works in the erection of a public lavatory at the Market House. Mr. W. L. Eves, F.R.I.B.A., F.S.I., surveyor, 54 High Street, Uxbridge.

Wales.—Oct. 30.—For erection of 100 houses, making and forming streets, sewers, and drains at Ogmore Vale, for the Lewis-Merthyr Consolidated Collieries, Ltd. Messrs. H. D. Williams & Son, Blackmill, Glam.

Wales.—Oct. 30.—For the execution of alterations and additions to the Town Hall buildings, Maesteg. Deposit £5 5*s*. Mr. S. J. Harpur, architect and surveyor, 32 Commercial Street, Maesteg.

Wales.—Oct. 31.—For the work required in carrying out alterations and additions to the stables in the Council yard, Drill-ground, Ebbw Vale. Deposit £1. Mr. T. J. Thomas, town engineer and surveyor, Ebbw Vale.

Wales.—Nov. 2.—For erection of sixteen houses at Bedlinog, for Cefn Cae Building Club. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Nov. 6.—For the erection of 21 houses at Abercanaid, for the Abercanaid No. 2 Building Club. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Nov. 6.—For building a transept with classrooms under and other works at the parish church of St. Thomas, Clydach Vale (Trealaw Station, T.V.R.). Mr. J. W. Rodger, architect, 14 High Street, Cardiff.

Wales.—Nov. 8.—For taking down old cottages at Little Isle of Wight, Merthyr, and erecting four new cottages on site. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Nov. 15.—For the erection of a sea wall at Cwmyreglwys, Dinas, 90 feet long, 8 feet high, and 4 feet tapering to 3 feet wide, for the St. Dogmaels Rural District Council. Mr. D. Davies, clerk, Quay Street, Cardigan, or Mr. W. R. Davies, road surveyor, Cambria Terrace, Newport, Pembroke.

Wales.—Nov. 21.—For erection of new girls' school at Troedyrhiw, Merthyr Tydfil. The Depupty-Surveyor, Town Hall, Merthyr Tydfil.

Waltham Cross.—Oct. 30.—For the extension of Waltham Cross Post Office, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. The Postmaster, Waltham Cross Post Office, and H.M. Office of Works, &c., Storey's Gate, S.W.

Warrington.—Nov. 10.—For erection of a boys' department of the Bolton Council School, Latchford. (Messrs. Wright & Hamlyn, architects, Warrington.) Deposit £1 1*s*. Mr. J. Moore Murray, M.Sc., Education Office, Sankey Street, Warrington.

Welwyn.—Nov. 1.—For erecting and completely finishing cottage at the waterworks, Welwyn, Herts. Deposit £1 1*s*. Mr. H. F. Mence, 11 St. Peter's Street, St. Albans.

Windermere.—Nov. 4.—For the construction of a public sanitary convenience at Bowness Bay, for the Windermere Urban District Council. Deposit £1 1*s*. Mr. J. T. Bownass, clerk, Windermere.

Wokingham.—Oct. 31.—For erection of cottage homes, Oxford Road, for the Guardians. Mr. J. F. Sargeant, clerk, Shute End, Wokingham.

The will of Mr. John Nickson, of 220 Liscard Road, Liscard, Cheshire, builder, has been proved at £106,394.

A public meeting has been formally called by the Lord Mayor of Manchester for November 6, when a vote will be taken with regard to the utilisation of the old Infirmary site.

An action has been called before Lord Cullen in the Court of Session at the instance of the Lord Provost, Magistrates, and Council of the City of Edinburgh against the Lord Advocate as representing the Commissioners of H.M. Works and Public Buildings. The action has arisen out of the decision of the Commissioners to increase the buildings of the Botanic Gardens facing Inverleith Row. The Corporation seek declarator that the Commissioners have no power to erect such buildings contrary to the desire of the Local Authority.

TENDERS.

ASHTON-UNDER-LYNE.

For erection of a P.M. church and schools in Ormonde Street, Hurst. Messrs. George Baines & Son, architects, 5 Clement's Inn, Strand, W.C.

Normanton & Son	£3,018	0	0
Saxon Bros.	2,694	0	0
Swallow & Taylor	2,610	0	0
Gibson & Sons	2,565	0	0
Gerrard & Sons	2,535	0	0
Pike & Sons	2,441	0	0
Woolley	2,330	0	0
Marshall & Sons	2,300	0	0
Ridyard	2,248	0	0
Dean	2,226	0	0
Marden & Sons	2,185	3	9
J. Robinson*	2,148	0	0

* This tender has been accepted for first portion of scheme.

BECKENHAM.

For the erection of a pavilion, stable, &c., for the Three Banks Athletic Club. Messrs. Norfolk & Prior, architects, Catford Bridge.

Goddard	£1,970	0	0
Christmas	1,671	0	0
Copeland	1,480	0	0
Boughton	1,334	16	6
J. Watt (*accepted*)	1,260	0	0

BODMIN.

For the erection of a scattered home in Beacon Road, for the Board of Guardians.

Bennett	£495	0	0
Brown	460	7	0
Brown & Son	455	0	0
Buscombe & Sons	450	0	0
Shelley Bros.	437	7	6
Hain (*accepted provisionally*)	435	0	0

FERRYHILL (DURHAM).

For erection of four dwelling-houses at Ferryhill Village, for the Cornforth and Coxhoe Co-operative Society, Ltd.

J. & G. L. Balkeld	£1,192	0	0
Hindmarch	1,091	0	0
Tigh	1,054	13	0
Bell	957	10	0
Wells	953	11	7
Rowe	943	0	0
Golightly	940	0	0
Pearson	924	0	0
Sowerby	920	0	0
Stockton Co-operative	883	0	6
Lazenby	860	0	0
Clark	829	12	6
D. C. Chambers, Spennymoor (*accepted*)	828	10	0

LONDON.

For incorporating additional land in the York Road site, Islington, and rebuilding the girls' and infants' offices.

Staines & Co.	£1,421	12	1
Marchant, Hirst & Co.	1,396	0	0
Williams & Son	1,366	0	0
Willmott & Sons	1,342	0	0
Neal	1,251	0	0
Lawrance & Sons	1,237	0	0
Stevens & Sons	1,234	19	0
Lenn, Thornton & Co.	1,230	2	2
Roberts & Co.	1,225	0	0
McLaughlin & Harvey, Brecknock Road (*accepted*)	1,185	13	6
Architect's estimate	1,176	0	0

For the erection of a further instalment of cottages on the Tower Gardens section of the L.C.C. White Hart Lane estate, Tottenham, the proposed cottages comprising 59 of three rooms and scullery and 39 of four rooms and scullery.

Whyborn	£22,469	0	0
Roberts & Co.	21,180	0	0
Chas. Wall, Ltd.	19,721	0	0
Lawrence & Son	19,053	0	0
Monk	18,636	0	0
Rowley Bros.	18,197	0	0
Nicholls & Son, Finchley (*recommended*)	17,780	0	0
Architect's estimate	19,000	0	0

LONDON—*continued*.

For alterations, painting, &c., at the George Green's School (Poplar).

Lowe & Co.	£978	0	0
Stewart	894	0	0
Grover & Sons	825	0	0
Roome & Co.	790	0	0
Newell	755	0	0
Lawrance & Sons	745	0	0
Vigor & Co., King Street, Poplar (*accepted*)	689	0	0

For structural alterations at the Whitefriars fire station, for the London County Council.

Gladding & Co.	£2,137	0	0
Holloway	1,812	0	0
Johnson & Co.	1,798	0	0
J. & C. Bowyer	1,773	0	0
Downs	1,640	0	0
Kerridge & Shaw, Danes' Inn House, 265 Strand, W.C. (*recommended*)	1,555	0	0
Architect's estimate	1,700	0	0

For the work of finishing the portion of Norman Avenue, adjoining the White Hart Lane estate, which the L.C.C. agreed to construct, under the agreement with the owner of the Elm Lodge estate.

Knifton	£221	4	6
Bloomfield	163	15	4
Coxhead	149	0	0
Griffiths & Co., Bishopsgate, E.C. (*accepted*)	147	2	7

For the provision of heating apparatus and the installation of electric lighting at the Great College Street School, St. Pancras.

(i.)—Heating work.

Boulton & Paul	£1,395	0	0
Grundy	1,037	0	0
Tilley Bros.	897	10	0
Cannon & Hefford	859	0	0
Yetton & Co.	844	0	0
Brightside Foundry and Engineering Co.	835	0	0
Knight & Sons	832	0	0
J. & F. May	830	0	0
G. & E. Bradley	805	0	0
Cannon & Sons	800	0	0
Palowkar & Sons, 90 and 91 Queen Street (*accepted*)	737	0	0

(ii.)—Electric Lighting.

The Fleet Electrical Company	£566	17	0
Lawrence & Sons	525	0	0
Waring & Withers	496	13	9
Williams & Bach	484	0	0
Tredegar & Co.	465	0	0
Johnson & Phillips	455	0	0
Smerdon	412	0	0
Weston & Sons, Fenchurch Street (*accepted*)	395	0	0
Saville & Walton (*withdrawn*)	340	0	0

The architect's estimate, comparable with (i.) is £850, and the chief engineer's estimate, comparable with (ii.), £420.

SALISBURY.

For electric light and power installation at the Salisbury and District Joint Isolation Hospital. Mr. J. H. Goodman, architect, Reading.

Malcolm & Allan	£1,406	10	0
Edmundson's Electricity Corporation, Ltd.	1,394	0	0
Walsall Electrical Co.	1,390	0	0
Vaughan & Co.	1,380	0	0
Mann, Egerton & Co.	1,374	0	0
Saville & Walton	1,309	0	0
Cozens	1,267	0	0
Electrical & Motor Co.	1,266	0	0
Innes	1,221	9	5
Lea, Son & Co.	1,220	0	0
Ellis & Ward	1,187	16	0
Felgate Installation Co.	1,175	12	6
Johnson & Phillips	1,169	0	0
Giffen Bros.	1,160	0	0
Mansfield Engineering Co.	1,114	4	5
Wilkins & Bro.	1,098	0	0
Hancock & Rixon	1,093	0	0
Graham Bros.	1,091	0	0
Price & Co.	1,025	0	0
Edwards & Armstrong	1,020	0	0
Grossmith & Co., Southsea (*accepted*)	998	0	0

SHEFFORD (BEDS.).

For erection of a house for Mr. H. Inskip. Messrs. George Baines & Son, architects, 5 Clement's Inn, Strand, W.C.

C. Wright, Biggleswade (*accepted*)	£664 11 10

SOLIHULL.

For manager's house for Solihull Gas Company. Messrs. Osborn, Pemberton & White, architects, Birmingham.

Moffat & Sons	£703 0 0
Briley	616 0 0
T. & W. Thompson	598 0 0
Reeve & Sons	595 0 0
T. & G. Perry	585 0 0
Bryany	580 0 0
Gaskon	559 0 0
Bragg Bros., Solihull (*accepted*)	550 0 0
Architects' estimate	530 0 0

TOTTON.

For erection of a drill hall, for the Southampton Territorial Force Association. Messrs. Hair & Bucknill, architects, Southampton.

Mackintosh Bros.	£1,560 0 0
Stevens & Co.	1,469 0 0
Long	1,390 0 0
Jenkins & Sons	1,343 0 0
Britten	1,328 0 0
Dyer & Sons	1,320 0 0
Colbourne	1,299 0 0
Jukes & Son	1,272 0 0
Creighton, Totton (*recommended*)	1,231 0 0

WEYBRIDGE.

For house in Beechwood Avenue, Oatlands Park. Messrs. Crickmay & Sons, architects, 13 Victoria Street, Westminster, S.W., and Weymouth, Dorset.

Ingram & Co.	£1,950 0 0
Gaze & Sons	1,785 0 0
Potterton	1,775 0 0
Drowley & Co.	1,715 0 0
Annett	1,660 0 0
Jarvis	1,598 0 0
Crocker	1,459 0 0
Nicholson, Weybridge (*accepted*)	1,435 0 0

TURIN EXHIBITION AWARDS, 1911.

A list has been recently issued of the awards accorded to British exhibitors in connection with the above. Among the successes are the following:—

Group II.—Measuring instruments and scientific apparatus.—Grand Prix to Messrs. W. F. Stanley & Co., Ltd.; Gold Medal to Messrs. W. & T. Avery, Ltd.

Group II.—Physical, optical, surveying and astronomical instruments.—Grand Prix to Messrs. Chance Brothers & Co., Ltd., Negretti & Zambra, and W. F. Stanley & Co., Ltd.

Group II.—Meteorological instruments.—Gold Medal to Messrs. W. F. Stanley & Co., Ltd.

Group IV.—Steam plant, heat, and other engines. Transmitting, lubricating, regulating, and indicating apparatus.—Grand Prix to Messrs. R. Hornsby & Sons, Ltd., and The National Gas Engine Co., Ltd.; Diploma of Honour to Messrs. C. C. Wakefield & Co.

Group IV.—Lifting, hydraulic and air machinery. Fire and safety appliances and submarine apparatus.—Grand Prix to Messrs. Merryweather & Sons, and White, Child & Beney, Ltd.; Diploma of Honour to The British Vacuum Cleaner Co., Ltd., and Watson, Laidlaw & Co.

Group IV.—Machines, appliances, and tools for working metals in general, for forging, &c.—Hors Concours: Carbic, Ltd.

Group V.—Generation, distribution, and mechanical applications of electricity.—Gold Medal to Ozonair, Ltd.

Group V.—Electro chemistry.—Grand Prix to Ozonair, Ltd.

Group VI.—Building materials, methods of construction, machines, appliances, models, plans, and drawings.—Grand Prix to Hadfield's Steel Foundry Co., Ltd., Pilkington's Tile and Pottery Co., Ltd., and Messrs. Ruston, Proctor & Co., Ltd.

Group VII.—Road transport.—Gold Medal to Messrs. Barford & Perkins.

Group VII.—Railways and tramways.—Hors Concours: Carbic, Ltd.

Group VIII.—Sanitation and provisioning. Provisions for comfort and safety.—Gold Medal to Ozonair, Ltd.

Group IX.—Gas production.—Hors Concours: Carbic, Ltd.

Group XI.—Sporting industries.—Grand Prix to The "E. C." Powder Co., Ltd.

Group XII.—The Modern Town.—Grand Prix to Messrs. Merryweather & Sons, and Ozonair, Ltd. (two).

Group XIII.—Materials and appliances for erecting, decorating, and finishing buildings.—Grand Prix to Mr. T. W. Camm, and Pilkington's Tile & Pottery Co., Ltd.; Gold Medals to the Bostwick Gate & Shutter Co., Ltd., and Mr. A. J. Dix.

Group XIV.—Furnishing, upholsterers' work, decorative bronzes, art candelabra, glass and china.—Grand Prix to The British Vacuum Cleaner Co., Ltd., Messrs. Doulton & Co., Ltd., Pilkington's Tile & Pottery Co., Ltd., and Messrs. Josiah Wedgwood & Sons, Ltd.

Group XIV.—Heating appliances, cooking ranges, and articles for domestic use.—Diploma of Honour: Ozonair, Ltd.

Group XIV.—Economics of forestry and forest management.—Grand Prix to Venesta, Ltd.

Group XIV.—Hunting.—Grand Prix to The "E. C." Powder Co.

Group XIV.—Pisciculture, fishery schools and associations.—Grand Prix to Ozonair, Ltd.

Group XVI.—Meteorology, agricultural geology, and study of soils.—Grand Prix to Messrs. W. F. Stanley & Co., Ltd.

Group XVII.—Food industries and products.—Grand Prix to Messrs. Watson, Laidlaw & Co., Ltd. (two), and Ozonair, Ltd.; Diploma of Honour to Ozonair, Ltd.

Group XVIII.—Metallurgical plant.—Grand Prix to Messrs. W. F. Stanley & Co., Ltd.

Group XVIII.—Chemical apparatus and products.—Hors Concours: Carbic, Ltd.; Grand Prix to Messrs. Fletcher, Russell & Co., Ltd., and The Gas Light and Coke Co.; Silver Medals to Ozonair, Ltd. (two).

Group XVIII.—Destructive distillation.—Grand Prix to The Gas Light and Coke Co.

Group XX.—Machines for hosiery manufacture.—Hors Concours: Carbic, Ltd.

Group XXIII.—Appliances for the Graphic Arts.—Grand Prix to Roneo, Ltd.

Group XXIII.—Advertising.—Hors Concours: Carbic, Ltd.

In making the awards as mentioned above, the International Juries for the respective classes accompanied the award by a record of their special congratulations in Classes 35, 36, and 37 (building materials, methods of construction, machines, appliances, &c.) to Pilkington's Tile & Pottery Co., Ltd., and Messrs. Ruston, Proctor & Co., Ltd.

LONDON MASTER BUILDERS' ASSOCIATION.

A Council meeting of the London Master Builders' Association was held at Koh-i-Noor House, Kingsway, W.C., on Thursday, the 19th instant.

The Finance Committee's report was read and approved, and the report of the Carpenters' and Joiners' Conciliation Board meeting was reported.

The Council gave its consideration to matters relating to the Industrial Council appointed by the Board of Trade, to a petition that had been lodged against the Trade Disputes Act (1906), and to various other trade matters, to the report in the Press of the annual meeting of the London Association of Slate Merchants and Master Slaters, and to the next issue of the Hand-book.

The following were elected as Associate members of the Association:—Messrs. the Metropolitan Asphalte Co., C. Loosley & Sons, and F. A. Clark & Son. The following were nominated for membership:—As ordinary member, Mr. A. E. Symes; as Associate member, Messrs. J. Russell & Co., Ltd.

The foundation stone of the Church of St. John the Baptist, Great Meols, in the parish of Hoylake, was laid on Saturday. It is proposed to build the nave alone, with a temporary chancel, and add the rest as the financial position allows. The cost of this first portion will be about £5,500. To add the chancel will mean about £1,750, and the tower a further sum of £1,500. The architects are Messrs. E. Kirby and Sons, Liverpool.

MODERN CARAVANSERAI.

It is always a pleasure to be able to record steady progress in an English industry. The firm of Spiers & Pond, Ltd., the caterers and hotel proprietors, have passed through a difficult time during the last few years; and it is particularly satisfactory to be now able to report that after earnest endeavour and collective hard work the directors have been enabled to restore the company to its old position as preeminently the leading firm of caterers and hotel proprietors. In connection with these efforts the board have been carrying out a systematic improvement at all their principal hotels, bringing them thoroughly up-to-date in decorative repair and sanitation, and in many cases making large alterations and additions. The hotel proprietor who desires to succeed must be always on the look-out for improvements which may add to the comfort of his guests. Messrs. Spiers & Pond, Ltd., have devoted particular attention in consequence to the lounge at each hotel. At one time the lounge was hardly used by guests staying in the house—in fact, it was ignored excepting perhaps by the younger people; to-day it is the living-room, if such a term is permissible, of the hotel, and most especially a cosy place for the afternoon tea. The directors of this company have been particularly careful that every possible comfort shall be given to their clientèle. The following details will convey some idea of the works of improvement which have been carried out under the supervision of the company's architect, Mr. F. Legg:—

Metropole Hotel, Blackpool.—Within the year extensive alterations have been made, consisting of taking down the wall between the Moorish lounge and the reading and billiard-rooms, which not only increases the accommodation, but gives a good view of the sea from the lounge itself. The entrance also has been altered and is now facing south, and has a spacious inner hall and hotel offices in a far more convenient position. Gentlemen's lavatories and cloak-rooms have been constructed under the inner hall, which are larger and much more convenient than in their former place.

Empire Hotel, Buxton.—A large sum was spent this spring in repainting and decorating. The garage, which can accommodate 60 cars, is the largest for miles round.

Empire Hotel, Bath.—Extensive alterations are being made in the kitchen and services and adding a lift and apparatus to the existing plant, which will mean that the service to the coffee-room will be better. Ladies and gentlemen's cloak-rooms have been much enlarged and made more convenient. Some bathrooms have also been added. There are two large houses opposite to the entrance which obstruct the view of the gardens and abbey. The lease of these expires at the end of the year, and by arrangement with the Corporation these houses will be pulled down and not rebuilt, so that there will then be an uninterrupted view from the hotel windows of the Abbey, the gardens, and the surrounding hills.

Palace Hotel, Hastings.—Extensive alterations have been schemed which will greatly improve the comfort of the visitors. The kitchens will be removed from the upper floor and the space converted into bedrooms, so that visitors occupying that part of the hotel will not be disturbed by noise which at present cannot well be avoided. The kitchen department will be moved to the basement, where there is far more accommodation, and a lift will be put in for service purposes. This will add comfort to the coffee-room, as the service will then be outside instead of opening into it as at present. The restaurant, which is patronised by people not staying in the hotel, will be made double its size and a spacious lounge provided in the rear, with a billiard-room over the lounge. The Hastings Corporation are about to make many valuable improvements in the town, and included in these are alterations to the baths under the parade in front of the hotel, where advertisements are lavishly displayed. All these advertisements are to disappear and the parade made much more attractive, which will notably improve the view from the hotel windows.

Bailey's Hotel, London.—This is one of the most comfortable of London hotels, and will be rendered even more so. The lounge is to be much increased in size, and several additional bath-rooms have already been added. The larders have been extended, and the kitchen has been re-modelled, and new apparatus fixed.

Criterion, Piccadilly Circus, London.—Many of the public and banqueting rooms have lately been entirely redecorated, notably the east room, which is one of the most luxurious rooms in London.

South-Western Hotel, Southampton.—This hotel has been quite recently taken over by the company from the L. and S.W. Railway, and has been brought quite up-to-date. Many alterations have been made here for the comfort of visitors, especially those going to and coming from the Continent and other parts. It is just outside the dock gates, and adjoins the station. It is one of the very few hotels where white wines are kept at an even and cool temperature by means of special bins controlled by a refrigerating plant, which has recently been installed for this and other purposes.

Furness Abbey Hotel, Furness Railway.—This hotel is built within the grounds of the famous Furness Abbey, and of some of the materials from the ruins. It has some relics of the past mounted in the walls. One in particular from the Abbot's House, is very fine, and is now in a room called the Abbot's Room. The coffee-room windows look upon the Abbey, as well as many of the bedrooms. There is now a good garage attached to the hotel. The whole place is nestled in a most lovely spot, which is sometimes called "the valley of the deadly night shade."

Victoria Hotel, Manchester.—This is a commercial as well as a family hotel, in the busy part of the city, and near the Corn Exchange. Many improvements have been made of late, including converting the smoking-room, which was a narrow room, into a large and commodious lounge, greatly adding to the comfort of those using the hotel.

The company also owns the Empire Hotel, Lowestoft; the Holborn Viaduct Hotel and South Kensington Hotel, London, and the South-Western Hotel, Surbiton. While executing alterations in the structural portions of their many hotels, Messrs. Spiers & Pond have not overlooked the no less important side of management and cuisine.

THE LATE MR. BEDFORD LEMERE.

We deeply regret to have to record the death of our old friend Bedford Lemere on the 17th instant after a short illness. He was the pioneer of specialism in the photography of architecture, and has continued to the last the foremost and most able exponent of that branch of art not only in technical skill, but in judgment of selection for his points of view and patience in waiting for the best effect of lighting for every particular subject that came before his camera. For students of architecture his collection of views of old work, and for practitioners his able presentment of their work, have earned a lasting debt of gratitude from the whole world of architecture. We are glad to know that his son, Mr. Henry Bedford Lemere, who has been thoroughly trained in his father's methods and has assisted him for several years, will continue to carry on the business of Bedford Lemere & Co.

It is proposed to hold an industrial exhibition on Newcastle Town Moor in the summer of 1914, to last six months. The previous exhibition at Newcastle-on-Tyne took place in 1887. A meeting of the promoters is announced for the end of next month.

The Committee of the Huddersfield Town Council, dealing with the provision of a new public library and art gallery, report that Mr. J. Frecheville Ramsden, of the Ramsden estate, was prepared to grant a site free of rent, subject to certain streetage charges. Three sites, all of fairly central position, have been offered.

Paddington Borough Council have adopted new public health by-laws, making it compulsory, under a penalty of £5, for the occupants of tenement houses to sweep the floors of their rooms once a day and wash them once a week, also to open the windows of sleeping apartments for at least one hour each day.

The Manchester City Council on Wednesday adjourned until their December meeting the adoption of the Royal Infirmary Old Site Special Committee's report. The Town Clerk stated that the report recommended the adoption of Design No. 4.

The Court of Common Council have decided to seek Parliamentary powers for the construction of a subway for pedestrians beneath Cannon Street, opposite Mansion House Station. The estimated cost is stated at £16,000, exclusive of land that might be required for openings on the public way. At the same meeting of the Common Council a plan was submitted of the proposed passenger subway communication between the Moorgate Street Station of the Metropolitan Railway Company and the Great Northern and City Railway Company's station on the eastern side of Finsbury Pavement. It was agreed that, provided satisfactory intercommunication was arranged with the City and South London Railway, no objection should be offered thereto.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

CHESHIRE.

Macclesfield.—Conservative Club House (£6,000).
Motor Garage, Chestergate.
Over.—Darnhall Endowed School: additions and alterations (£2,000).
Port Sunlight.—Council School for 1,000 children, New Chester Road.
Stockport.—Mental wards at Stepping Hill Infirmary.

CORNWALL.

Bodmin.—Scattered Homes, Beacon Road. Mr. C. F. Hain (estimate, £435; accepted provisionally).
Plantation.—Wesleyan Chapel.
Truro.—Seventeen working men's houses, Waterloo (£3,000). Mr. Barnes, City Surveyor.

DERBYSHIRE.

Borrowash.—Church (and Sunday) Schools (£1,000).

DEVON.

Newton Abbot.—Workhouse additions. Mr. S. Segar, architect.
Taunton.—Endowed School: rebuilding.
Torrington.—Police Station additions. Mr. E. H. Harbottle, F.R.I.B.A. (of Exeter), architect.

GLOUCESTERSHIRE.

Tewkesbury.—Public Baths, Wyatt's Meadow.

HAMPSHIRE.

Bournemouth.—Elementary School at Stourwood.
Shirley.—Council School.

HEREFORDSHIRE.

Leominster.—Secondary School extension (£3,000).

ISLE OF WIGHT.

Parkhurst.—Four prison-blocks (accommodation for 200).

KENT.

Bexley Heath.—Clock tower. Messrs. Friday & Ling (of Erith), contractors (£450).
Maidstone.—Four houses, Dover Street.
Margate.—Cottage Hospital enlargement.
Canterbury.—Cathedral S.W. tower restoration (£5,500).
Guardians' Nurses' cottage. Mr. C. Mount, contractor (£949).
Ightham.—Voluntary School.
Rochester.—Post Office.
Willesborough.—Two houses, Earlsworth and Gladstone Roads.

LANCASHIRE.

Ashton-under-Lyne. — Sunday School, Hurst Lane (£1,100).
Ashton-upon-Mersey.—Council School.
Bolton.—St. Barnabas Church. Mr. Mark Freeman, architect.
St. Margaret's Church. Messrs. Austin & Paley, A.R.I.B.A. (of Lancaster), architects.
Nine houses in Lee Avenue.
Two houses in Albert Road.
Two houses in Kenilworth Square.
Twenty-eight houses in Arnold and Primula Streets.
Breightmet.—Two houses in Within's Lane.
Radcliffe.—Electricity Sub-station. Mr. W. L. Rothwell, engineer.
Sale.—Council School.

LINCOLNSHIRE.

Grimsby.—Cattle spice factory.
Soap factory.
Oil and colour mill.

MIDDLESEX.

Stanwell.—Isolation Hospital. Mr. G. W. Manning, L.R.I.B.A. (of Ashford), architect.
Willesden.—Board of Guardians: institutional buildings for children, homes for aged poor, buildings for consumptives (£25,000).

MONMOUTHSHIRE.

Newport.—Drill hall, riding school and instructor's quarters.

NORTHAMPTONSHIRE.

Northampton.—St. Andrew's Church: exterior restoration (£1,000).

NOTTINGHAMSHIRE.

Nottingham.—Alterations to stores, Woodborough Road, for the Gas Committee.

STAFFORDSHIRE.

Eccleshall.—Police Station and Court House, High Street. Mr. W. J. Nevett (of Stafford), County architect.
Lichfield.—Council Chamber and Public Offices next the Guildhall.
Two houses, Gaia Lane.
Eight houses in Stafford and Trent Valley Roads.
House (additions), Trent Valley Road.

SURREY.

Epsom.—Technical Institute enlargement (£1,950).
Guildford.—Twenty cottages for the Corporation, in Cline Road (£4,200). Mr. T. J. Capp, architect.
Motor Factory, Woodbridge Hill.
Haslemere.—Council Slaughter-house.

SUSSEX.

Chichester.—Caretaker's quarters at the High School (£300).
Eastbourne.—Primitive Methodist Church.
Alexandra Cottage Homes: Edward VII. Memorial Wing.
Lancing.—Infants' School (Council).

WARWICKSHIRE.

Coventry.—Working-men's houses (£30,000).

WILTSHIRE.

Amesbury.—(Supplementary to July 21) Police Station. Messrs. Parsons Bros. (of Westbury), contractors (£5,200).
Devizes.—Hospital extension (Edward VII. memorial). Mr. A. J. Randell, architect. Mr. H. Ash, contractor (£2,198).
Winsley.—Sanatorium extension. Mr. Skinner, architect.

WORCESTERSHIRE.

Barnard's Green.—House.
Wythal.—Sessions Court House.

YORKSHIRE.

Acomb.—Primitive Methodist Chapel (£1,600). Mr. J. H. Rickman (of York), architect. Separate trade contractors.
Barlby.—Pumping station. Messrs. Parker & Sharp (of York), contractors (£885).
Guisborough.—Laundry, Northgate.
Halifax.—Workhouse additions (accommodation for 13 beds), £370.

WALES.

Clydach Vale.—St. Thomas Church: transept and classrooms, &c. Mr. J. W. Rodger (of Cardiff), architect.
Herbrandston.—Parish hall. Mr. J. B. Gaskell (of Milford Haven), architect.
Maesteg.—Town Hall additions and alterations. Mr. S. J. Harpur, M.Inst.C. and M.E., architect.
Ogmore Vale.—100 houses for the Lewis-Merthyr Consolidated Collieries, Ltd. Messrs. H. D. Williams & Son (of Blackmill), architects.
Penrhiewtyn.—Neath Guardians' Workhouse Graded Infirmary (£27,858).
Pontsarn.—(Supplementary to September 15) Sanatorium for Consumptives. Messrs. John Morgan & Son (of Aberdare), contractors (£7,177).
St. Asaph.—Workhouse Casual Wards accommodation. Mr. James Hughes (of Denbigh), architect.
Trelewis.—26 houses on the Bontnewydd Farm. Mr. T. Roderick (of Aberdare), architect.

SCOTLAND.

Bo'ness.—Picture Palace, Hope Street (accommodation for 700), £1,500.
Canonbie.—Public Hall.
Dundee.—Training College. Mr. J. H. Langlands, architect.
Metal-breaking house, Session Street.
Jute warehouse, Mid Street.
Johnstone.—Public slaughter-house (£2,000).
Kingussie.—Three large villas, Speyside (£5,100).
Leith.—Infants' Board School, Elbe and Pattison Streets.
Liff.—Board School for 160 children, Coupar Angus Road (£2,000). Messrs. Thoms & Wilkie, FF.R.I.B.A. (of Dundee), architects.
New Cumnock.—U.F. Church for 520 persons (£4,000).
Paisley.—Church Halls (five), North Croft (accommodation for 550).
Nurses' Home, buildings for Parish Council at West Mount.
Pitlochry.—Post Office.
Central School extension for cookery, laundry, woodwork, and gymnasium (£900).

Troon.—U.F. Church, corner of St. Meddans Street and South Beach.

IRELAND.

Crumlin.—National Schools. Mr. G. L. O'Connor, F.R.I.A.I. (of Dublin), architect.

Dublin.—Cycle factory, Pleasants Street. Mr. T. J. Cullen, M.R.I.A.I., architect.

Killarney.—International Hotel re-building. Mr. G. T. Moore, M.Inst.C.E., &c. (of Dublin), architect.

Tralee.—Convent and Chapel for the Sisters of the Presentation Order. Mr. S. F. Hynes, F.R.I.B.A. (of Cork), architect.

MINTER *v.* WALDSTEIN.

On Friday, October 20, Mr. Muir-Mackenzie, High Court Official Referee, gave judgment in the action in which Mr. F. G. Minter, a contractor, whose head offices are at Putney, sued Mr. Charles Waldstein, Professor of Fine Art at Cambridge University, for the recovery of money due, he said, to him under a certificate of Mr. Foster, an architect, in connection with alterations, enlargements, and additions to Newton Hall, Harston, near Cambridge. The defendant pleaded that Mr. Foster was no longer in his employ as architect when he granted a certificate for £2,750, the principal item claimed, the Professor alleging that he had revoked Mr. Foster's power. The Professor raised other defences, alleging bad workmanship and materials and non-fulfilment of the contract by the plaintiff. He presented a counter-claim. The plaintiff denied breach of contract and alleged in effect that he had had to make variations to meet the aesthetic requirements of the Professor. The hearing of the action occupied thirty-eight days, during which leading architects gave evidence on both sides.

In the course of a very lengthy judgment the Official Referee decided that the Professor had not effectively determined Mr. Foster's authority to give a binding certificate for work done, and he held, therefore, that the Professor's letter of January 11, 1911, did not operate to revoke Mr. Foster's authority. Regarding another allegation as to defective timber Mr. Muir-Mackenzie said he found that with the exception of the Archangel timber, the other timber was not of the description specified. He also arrived at the conclusion that the acquiescence of the architect in the wider spacing joists and his permission for the supply of timber of inferior quality did not absolve the plaintiff from his obligation to fulfil the contract in regard to the timber, or prevent the disregard of specifications.

The Referee dealt at length with the many items in the claim, allowing some and disallowing others, and finding that certain of the Professor's complaints were not proved. Mr. Muir-Mackenzie added that he had seen the house in July, and his finding was that the condition of the house was substantially as described by the defendant's witnesses. The weakness of the floors had produced numerous fissures and cracks, some of which were serious, and he found that it was necessary for the stability of the house that remedies of the kind proposed by some of the defendant's witnesses should be adopted. He had come to the conclusion that the remedies proposed in evidence for the plaintiff were insufficient to obviate the defects, but, on the other hand, he was of opinion that suggestions advanced on behalf of the Professor covered a good deal more than the plaintiff was responsible for. In conclusion, having disallowed certain extras claimed for, the Referee said there must be judgment for the plaintiff for £3,283 in all and for the Professor on the counter claim for £2,116 14*s.* 3*d.* The result would be that the plaintiff received £1,166 5*s.* 9*d.* Plaintiff would have the costs of the claim and the defendant the costs of the counter claim. As regarded issues or parts of claim on which either party had failed he could not have the costs of those issues, and the other party was entitled to the costs of those issues.

On the application of Mr. Clavell Salter, K.C., for the Professor, a stay of execution was granted upon terms.

In a case at the Wandsworth County Court, under the Workmen's Compensation Act, the applicant, a builder's labourer, stated that since his fingers were crushed in November last year he had not tried to get work. The medical referee, who examined the man, said that if he had gone to work when apprised by the doctor he would now be perfectly well. The Judge thought the applicant had behaved very unreasonably, and made an award for one penny a week, without costs.

GLASGOW INSTITUTE OF ARCHITECTS.

A quarterly general meeting of the Glasgow Institute of Architects was held on the 18th inst. at 115 St. Vincent Street, Mr. Alexander N. Paterson, M.A., A.R.S.A., vice-president, in the chair. Reference was made to the death of Mr. W. F. Salmon, F.R.I.B.A., who was one of the original members of the Institute, his father having been the first president. It was reported that the council had minuted an expression of regret at Mr. Salmon's death, and an appreciation of his work as an architect, with which the meeting associated itself. Messrs. Charles James Halley, Clydebank, and John Scotland, Airdrie, were unanimously elected Fellows, and it was reported that Messrs. Eoin Montgomery, Netherburn; William M. Bishop, Motherwell; and William S. Gibson, Wishaw, had been elected Associate members. The Secretary submitted a report on the matters which had been dealt with since last meeting. The sum of £7 7*s.* had been granted to the Glasgow School of Architecture for prizes, and the proportion amounting to £2 2*s.*, granted to the Technical College Section of the School of Architecture, had been awarded to Mr. John M. Venters, Port-Glasgow. The important subject of architectural education had been carefully considered, with special reference to the co-relation of office apprenticeship with the course of study provided by the Glasgow School of Architecture, and a scheme combining the training received in the office with attendance at the classes leading up to the certificate and diploma granted by the School of Architecture had been issued to members of the Institute. The matter of the better regulation of architectural competitions had also received consideration, and a scheme approved by the Council was in the hands of the R.I.B.A. for approval before being brought before the Institute. The R.I.B.A. Council had been authorised to continue to elect licentiates until the end of June 1912, and all applications required to be lodged before May 31, 1912. At the request of the R.I.B.A. Committee on Architectural Education, the Council appointed a committee to examine designs which it had been agreed that students in the R.I.B.A. final examination should submit in place of the testimonies of study now required. A revised scale of professional charges proposed by the R.I.B.A. had been considered and approved of. It was intimated that the president had arranged with Messrs. Henry T. Hare, James S. Gibson, and Maurice B. Adams to give papers before the Institute in the course of the coming session.

NOTTINGHAM ARCHITECTURAL SOCIETY.

The opening meeting of the winter session was held at the Society's Room in St. James Street on Tuesday, October 24.

An important letter was read from the Nottingham Building Trade Employers relative to "specialists" in contracts, which was deferred to a future meeting for full discussion.

Messrs. A. Hendy and W. Shepherd were elected members, and Messrs. C. W. Hasledine, T. H. Daumsley, N. H. Pratt, and J. Darburton were elected Associates of the Society.

After light refreshments had been served, the members adjourned to the lecture room, where Mr. Harry Gill, M.S.A., a member of the Council, gave a most interesting lecture entitled "Holiday Rambles in Norfolk." This was fully illustrated by a large number of his own lantern views of the buildings and churches in Norwich, King's Lynn, Cromer, and the small villages in "Poppy Land." The lecturer pointed out the special architectural features of each view, and in the short time at his disposal gave a lot of useful and interesting information. The lecture was fully appreciated, and at its conclusion the president and vice-president expressed the thanks of those present to Mr. Gill for the very enjoyable hour he had given them.

The Chartered Surveyors' Golfing Society held a very successful meeting at the Bramshot Golf Club's course on October 14, when bogey and stroke competitions were held, prizes being presented by the society. The course was in excellent condition and afforded most enjoyable golf. The meeting was well attended, members having travelled from as far as Wolverhampton and Horsham in order to be present. Fifty cards were taken out. The annual general meeting of the Society will be held at the Surveyors' Institution on Tuesday, November 14, at 5.30 p.m. The annual dinner will be held at the Trocadero Restaurant, Piccadilly Circus, W., on November 23, at which Mr. Leslie R. Vigers will preside.

DAYLIGHT RODS.

One of the essentials of a satisfactory building, be it warehouse, office or place of residence, is that all the interior should be well-lighted by day and by night. There are problems of daylight illumination just as there are of artificial illumination, and very many of both these classes are of modern growth. Up to the present the new science has scarcely received the attention it merited, though there is now a growing earnestness to understand it. In the case of daylight illumination the defects and shortcomings are sometimes due to lack of forethought on the part of the architect when preparing his design or plan, and sometimes to the adjacent buildings, which obstruct the entry of light through even the best spaced windows. For some few years now the architect and house-owner have been able to introduce prismatic and other forms of patent glass to increase the amount of daylight in rooms which were previously more or less always dependent on artificial illuminants. The success was in most cases instantaneous and complete, dark rooms being made light even to the furthermost corner. In some especially bad cases, however, there was only a qualified improvement.

The ingenious minds which had evolved the varieties of patent glass were therefore set upon developing their ideas. And one of them has hit upon a new form which should go far to meet all difficulties: that one was Mr. E. J. Dobbins. Mr. Dobbins is a specialist, and as the proprietor and patentee of the ubiquitous "MAXimum Daylight Glass" he was in a position to intimately understand all requirements. The MAXimum Light Window Glass Co., 26 Victoria Street, S.W., have fitted innumerable sheets of prismatic glass, canopies, and reflectors with most gratifying results. Nevertheless Mr. Dobbins had to admit that in some cases the conditions were almost too much for him. This only acted as a spur. The result of much consequent thought and experiment is a new patent called "Dobbins' Daylight Rods." By means of these rods daylight may be controlled and placed where most required and diminished where the light is too strong or too direct. This is possible because the rods are a combination of shapes embodied in a practically solid round glass bar. The rods are usually arranged horizontally across a window opening and flush with the wall face in the manner of a Venetian blind and as simply. The control of light is achieved by simply turning the rods into the position where they throw the light in the desired direction. A most important claim for the rods is that when turned in one certain position they effect an increase of illumination in every part of the room where they are visible instead of illuminating only in predetermined lines dependent on the approaching light. This new patent should go far to give despairing property owners a lawful right to describe their premises as "well-lighted."

VARIETIES.

The Oxford City Council this week declined to sanction the adoption of the overhead wire system in connection with the proposed tramways.

The Chertsey Rural District Council have received a letter from the Local Government Board sanctioning a loan of £10,050 for carrying out sewerage and sewage works at Pyrford in conjunction with the Byfleet scheme.

The Willesden Board of Guardians propose spending £25,000 on the erection of institutional buildings for Poor-law children, homes for the aged poor, and buildings for the treatment of consumptive cases.

The Aberdeen University Court have accepted tenders for a new class-room block at King's College. The tenders, which amounted to about £9,700, were all by local contractors. Building operations will be commenced without delay on the site of the Old Aberdeen Brewery, adjoining King's College.

Acting on the report of the Medical Officer of Health, the Pembroke (Ireland) Urban District Council have passed a scheme for dealing with the problem of overcrowded and insanitary dwellings. The proposal contemplates the erection of a large number of dwellings in Ringsend, Irishtown, Ballsbridge, Donnybrook, and Clonskea at a probable cost of £100,000.

At the annual meeting of the Cardiff Society of Architects Mr. G. A. Birkenhead, Cardiff, was re-elected on the council, and Mr. Reginald R. Fearnside, Cardiff, was elected a member. The annual report stated that during the year local hon. secretaries had been appointed in the following centres:—Cardiganshire, Carmarthenshire, Denbighshire, Glamorganshire, and Monmouthshire.

The *Zentral-Anzeiger*, Vienna, of October 8 states, according to the *Board of Trade Journal*, that a company has been formed in Debreczin, with a capital of 1,000,000 kronen (£41,600), for the erection of an hotel and theatre at Debreczin (Hungary); also that a company, presided over by Dr. Friedrich Párkány, of Budapest, has been formed with a capital of £33,300, for the purpose of building an hotel at Siófok (Hungary).

During the year from October 1, 1910, the estimated value of the buildings, alterations, and additions made under warrant of Greenock Dean of Guild Court was £114,486, as compared with £59,509 in the previous twelve months, this being about the average of the past ten years. The buildings included twenty-two tenements and thirty cottages or villas, and accommodation was provided for 285 families, or a population of 1,140.

The Lord Provost's Committee of the Edinburgh Town Council are considering the advisability of recommending the Town Council to adopt a resolution that in future all the city building contracts containing more than one of the recognised separate building trades and exceeding a gross value of 500*l*., be tendered for separately and directly by individual firms belonging to the different recognised building trades, and so discountenance as far as possible the practice of sub-contracting in important city contracts.

The Scarborough Corporation have decided to exercise the right of purchasing the southern portion of Mr. Beeforth's Belvedere Grounds at once, instead of waiting and exercising their option. It is understood that Mr. Beeforth is willing to sell at once for £2,000. The Corporation will then be the possessors of the whole of the undercliff from the Spa to Wheatcroft. They have a scheme on hand for developing it at a cost of £35,000. It is not, however, proposed to carry out all the work at once, the scheme being divided into three sections.

Mr. Courtenay Clifton held on Monday an inquiry at Coventry, on behalf of the Local Government Board, into an application of the City Council to borrow £29,345, for the erection of working-class dwellings on land in Narrow Lane. It is proposed to build ninety three-bedroomed houses, at a cost of £200 each, and forty-six two-bedroomed, costing £190 each, part of the original scheme of 1907, which had been carried out and the houses erected. The experience of the Corporation, in regard to the forty-eight dwellings in existence, has encouraged them to proceed further. The demand for houses was stated to be as great now as it was four years ago, and it was estimated that the scheme would continue to be self-supporting.

The Technical Education Sub-committee of the Birmingham City Council recommend that provision be made for a central school of commerce in connection with the contemplated extension of the Municipal Technical School, and that a suite of at least twelve class-rooms be reserved in the new portion of the building for such purpose. The Sub-committee also submit details of proposals for the extension of the Municipal Technical School, and recommend that as possession can be obtained of the whole of the premises on the site of the proposed extension by June 24 next, authority be given for tenders being obtained for clearing the site as soon as practicable after that date.

At a special meeting of the Edinburgh, Leith, and District Building Trades Association the subject of sole contracting was considered. The practice was unanimously condemned, and a resolution in the following terms was passed:—"That building contracts containing more than one of the recognised separate building trades and exceeding a gross value of £500 should be tendered for separately and directly by individual firms belonging to the different recognised building trades." The Executive Committee were empowered to take steps to secure united action in order that effective results may be obtained.

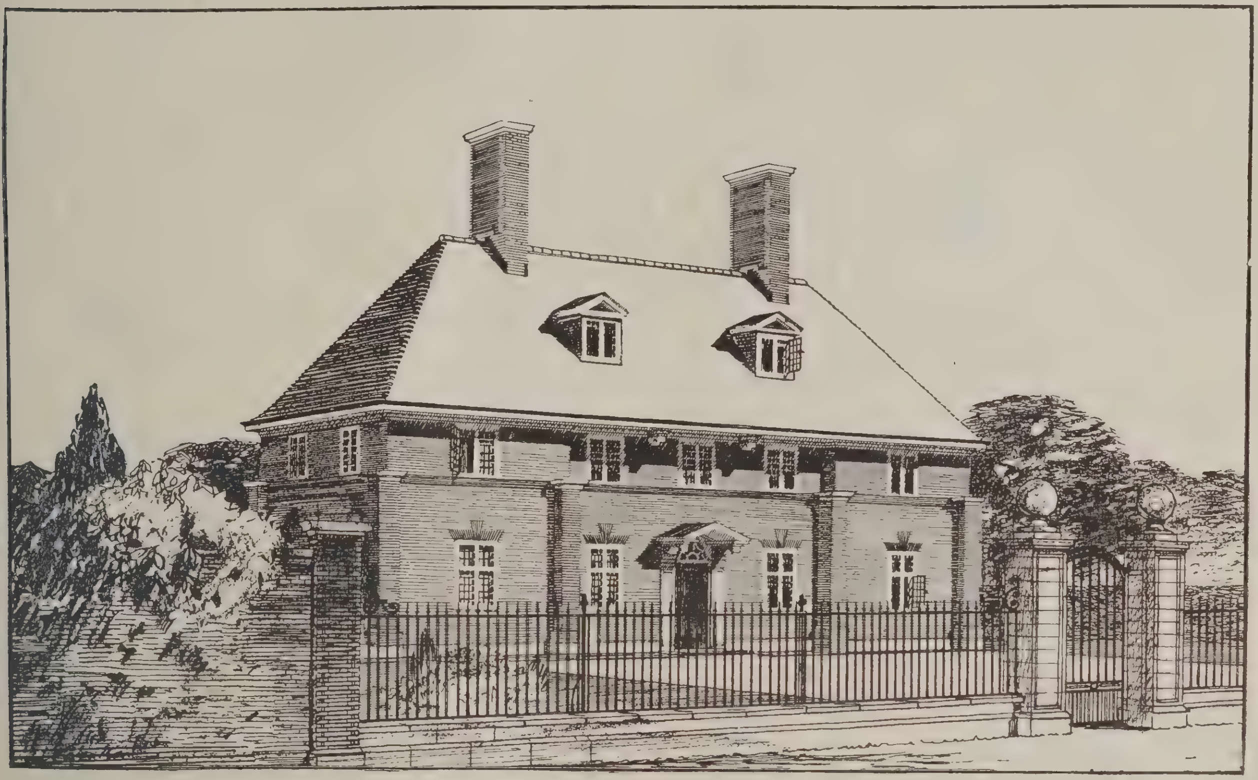
Building permits in Canada for August record the remarkable gain over the same month last year of over 41 per cent. Only seven cities in Canada show decreases as compared with the same month last year; four of these, it is interesting to note, are in the western provinces. Winnipeg takes the first position in total permits issued—with a total of nearly 2,000,000 dols., while Vancouver reports the largest gain of any of the big cities, its figures being 105 per cent. in advance of its last year's total. In the cities of the next grade, Edmonton reports a remarkable gain of 356 per cent., while Calgary and Victoria also have increases of over 100 per cent. Medicine Hat, in Southern Alberta, one of the smaller but promising cities has the largest gain of all with 734 per cent. Several old cities in Ontario, such as Stratford and Kingston, also show big gains.

WEEK-END COTTAGES, BUNGALOWS, AND OTHER SMALL HOUSES.

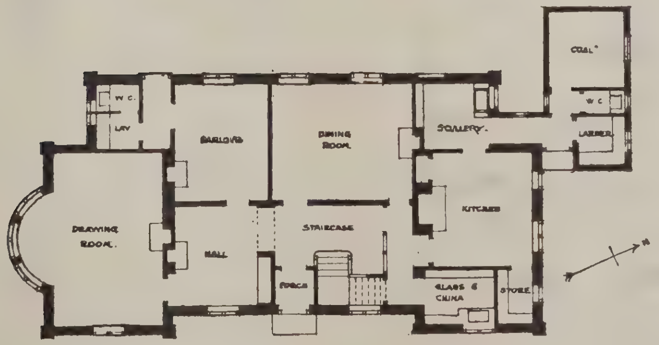
CONTINUING our series of monthly supplements, of which the first appeared on September 29, we now present further examples of original and unexecuted sketch designs by able architects. The amounts which are quoted as approximate prices are reliable in average cases, but the cost of the same house will necessarily vary in different localities according to local circumstances.

The Editor of *The Architect* will be pleased to introduce the authors of the designs published to any one who may wish to have a house built in accordance with the plans or a modification of them.

DESIGN NO. 7.



THE GARDEN FRONT.

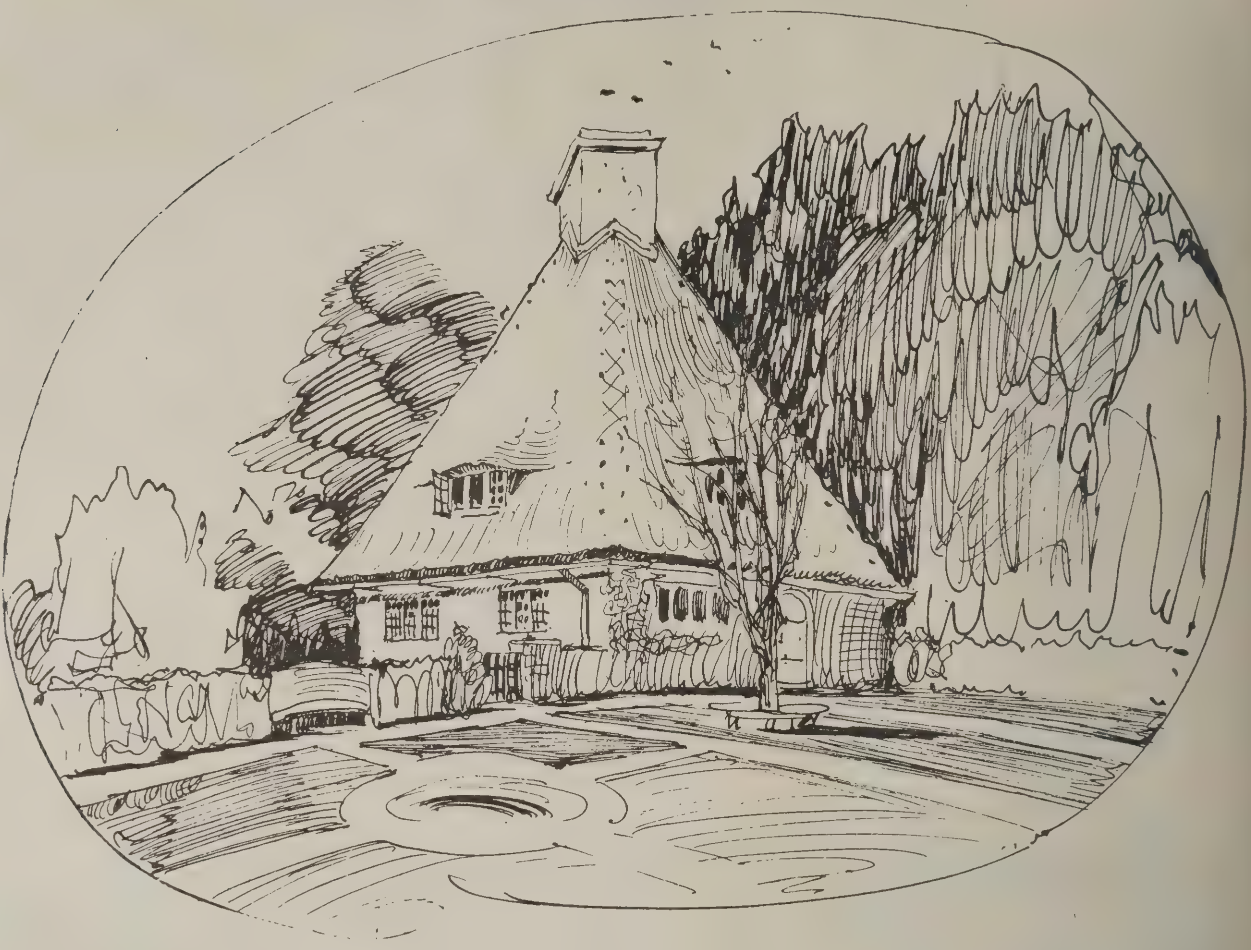


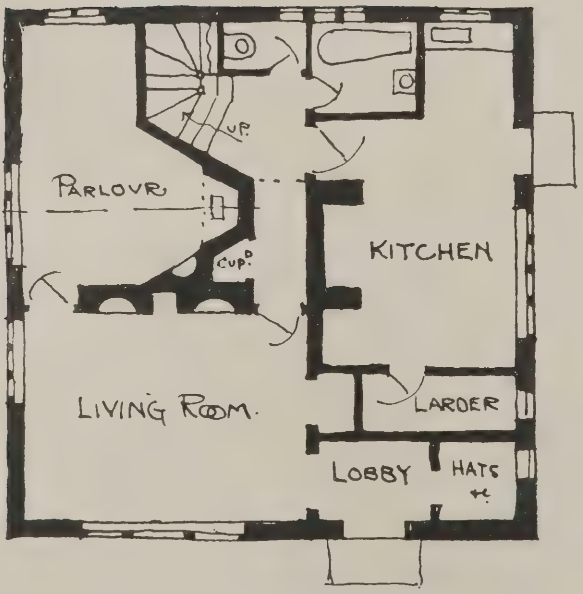
GROVND FLOOR PLAN

Here we have an example of an interior skilfully planned to produce a symmetrical exterior of the character that was so generally given to eighteenth-century English houses, which with their severe simplicity in external treatment united with excellent workmanship, particularly in their internal woodwork, were eminently suggestive of quiet and dignified home life.

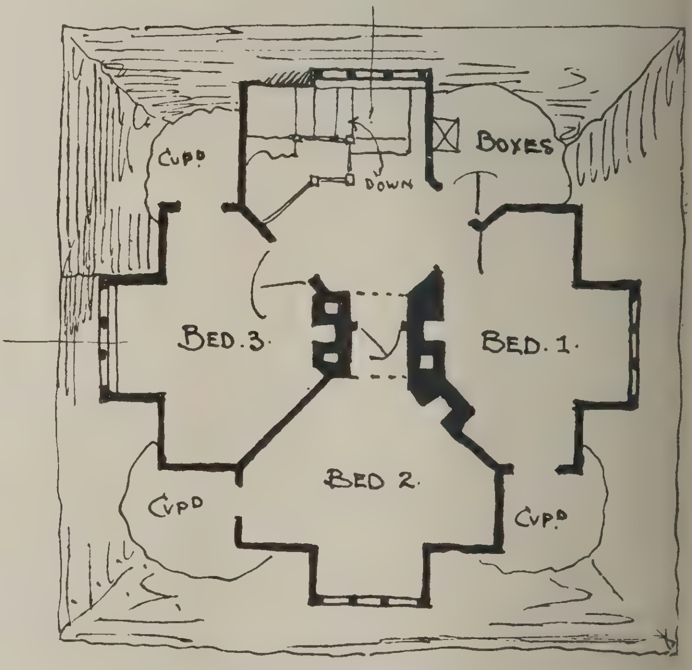
This house is intended to be built with walls of blue-grey bricks with red brick angles and arches, the roof being covered either with tiles or green slates and the woodwork painted white. The cost would be about £1700.

DESIGN NO. 8.





GROUND FLOOR PLAN.

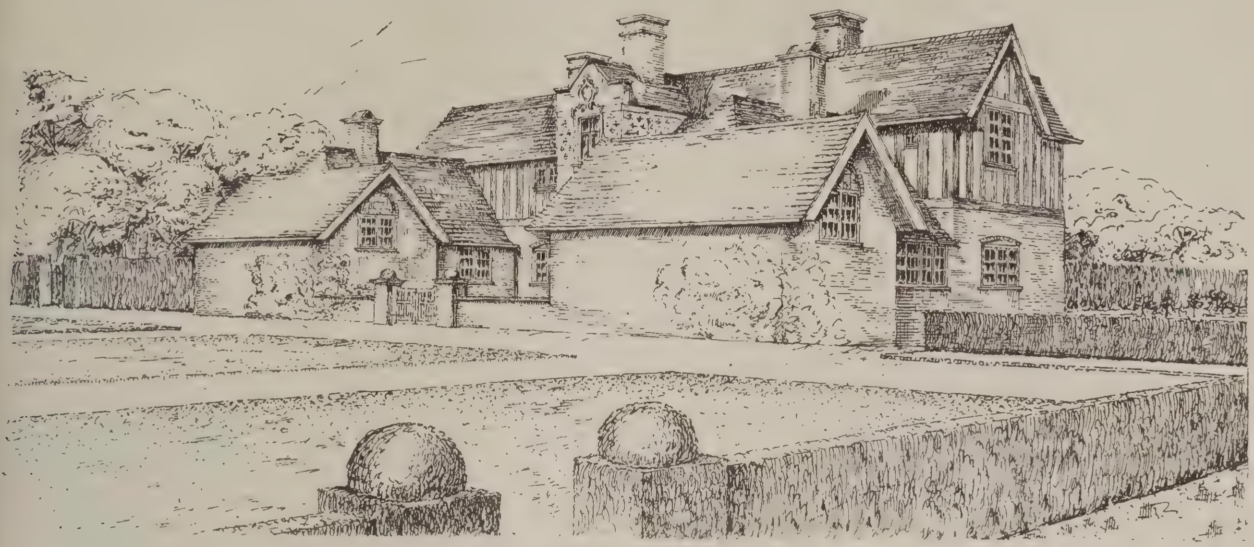


FIRST FLOOR PLAN.

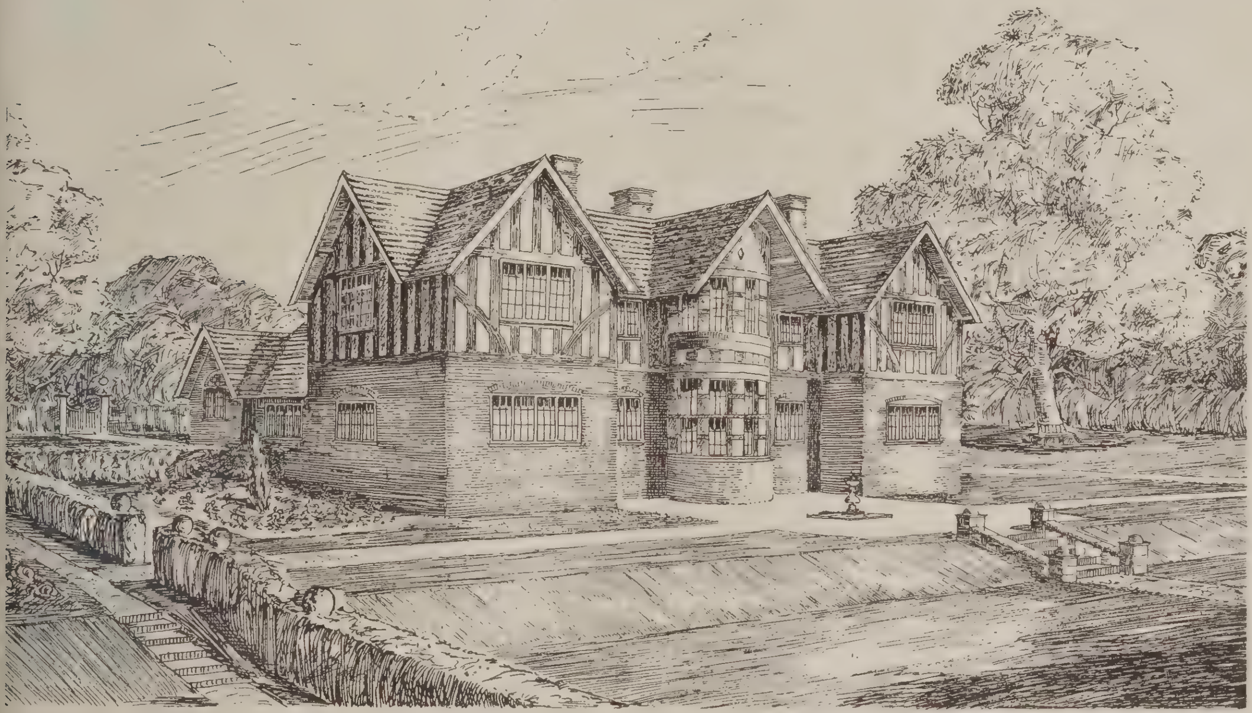
The planning of this cottage is somewhat unusual, a living room, parlour, kitchen, and three bedrooms being contained within a square of twenty-eight feet on two floors, a central chimney-stack taking all the flues.

The walls externally would be covered with rough-cast and the roof with straw or heather thatching. The windows would have wood frames and casements glazed with leaded lights. The internal fittings and finishings would be designed to be in keeping with the somewhat unusual character of the cottage. The probable cost of the cottage complete would be about £850.

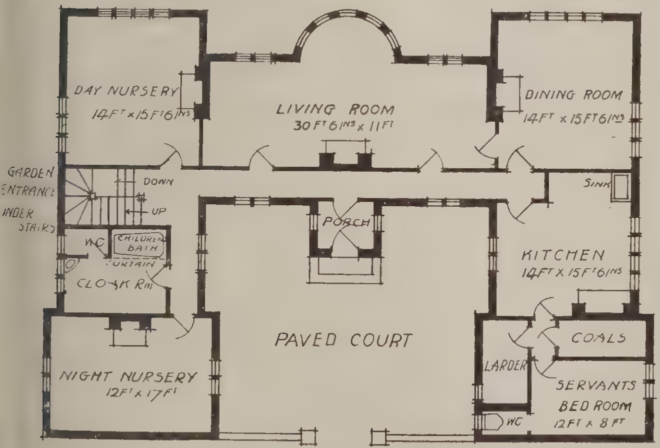
DESIGN NO. 9.



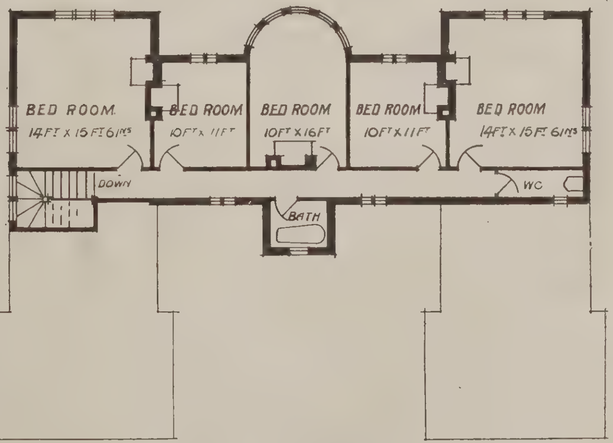
ENTRANCE FRONT.



GARDEN FRONT.



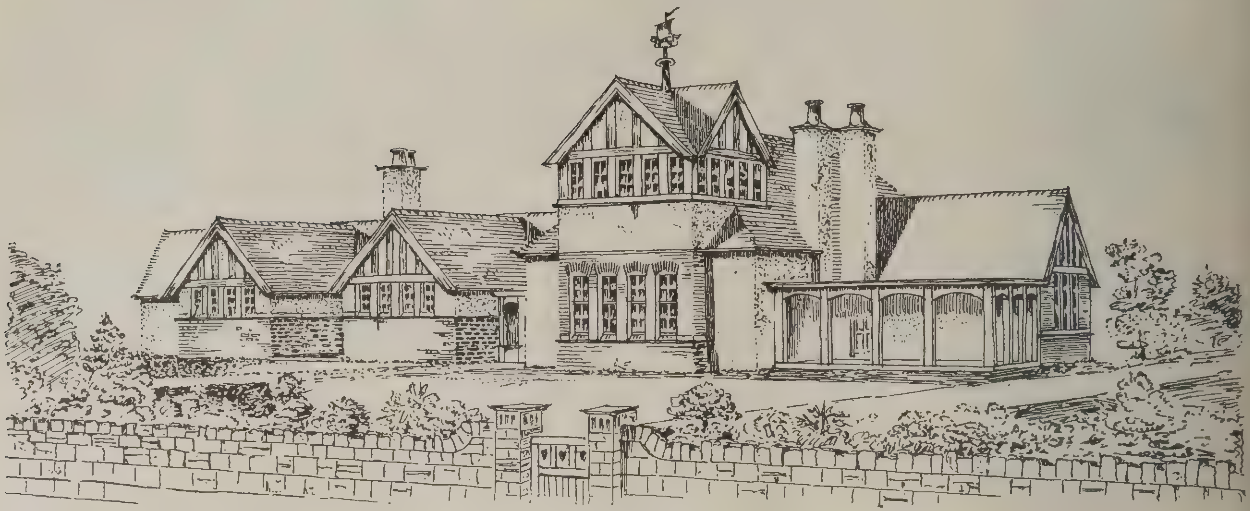
GROUND FLOOR PLAN.



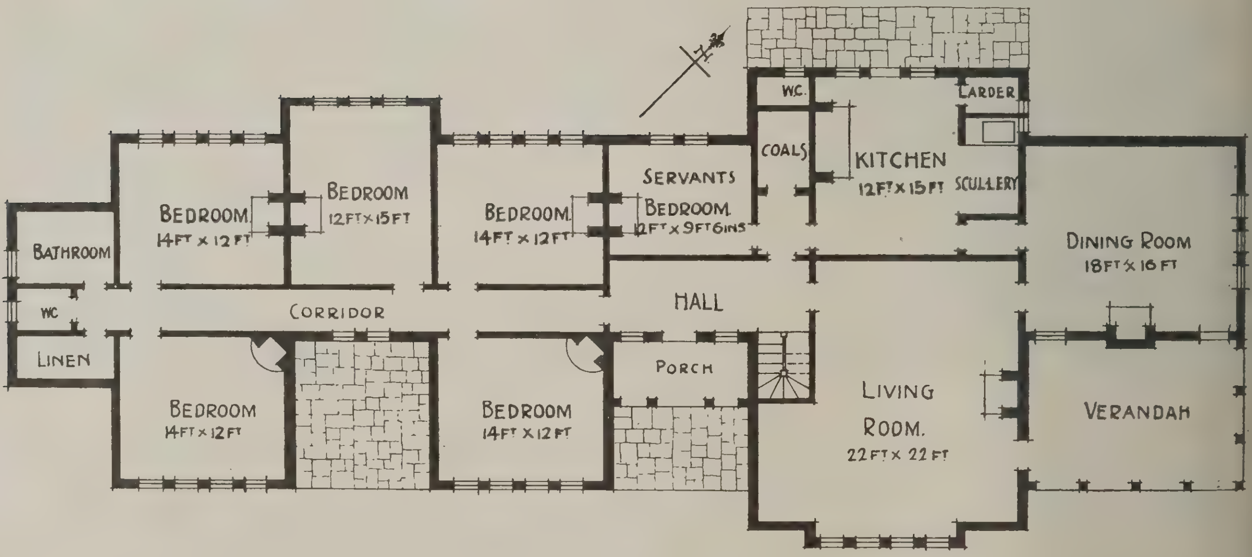
FIRST FLOOR PLAN.

This house is designed especially for family life, with a day and a night nursery and five other bedrooms besides ervants' room. A large living room and a dining-room are provided instead of the usual reception rooms. If nurseries vere not required these two rooms, on the ground floor, could be used as drawing-room and library. The house is inended to be built of old red bricks mixed at random with old stocks, but the porch projection would be in new bricks iapered in dark and light. The circular bay to be in red and yellow stone from plinth to head of first floor windows nd above in rough-cast. Half-timbering in jarrah with cream plaster panels. The tile roofs in broken tints with old and rindled tiles. The cost of this house would be about £1000.

DESIGN NO. 10.



SOUTH EAST VIEW.

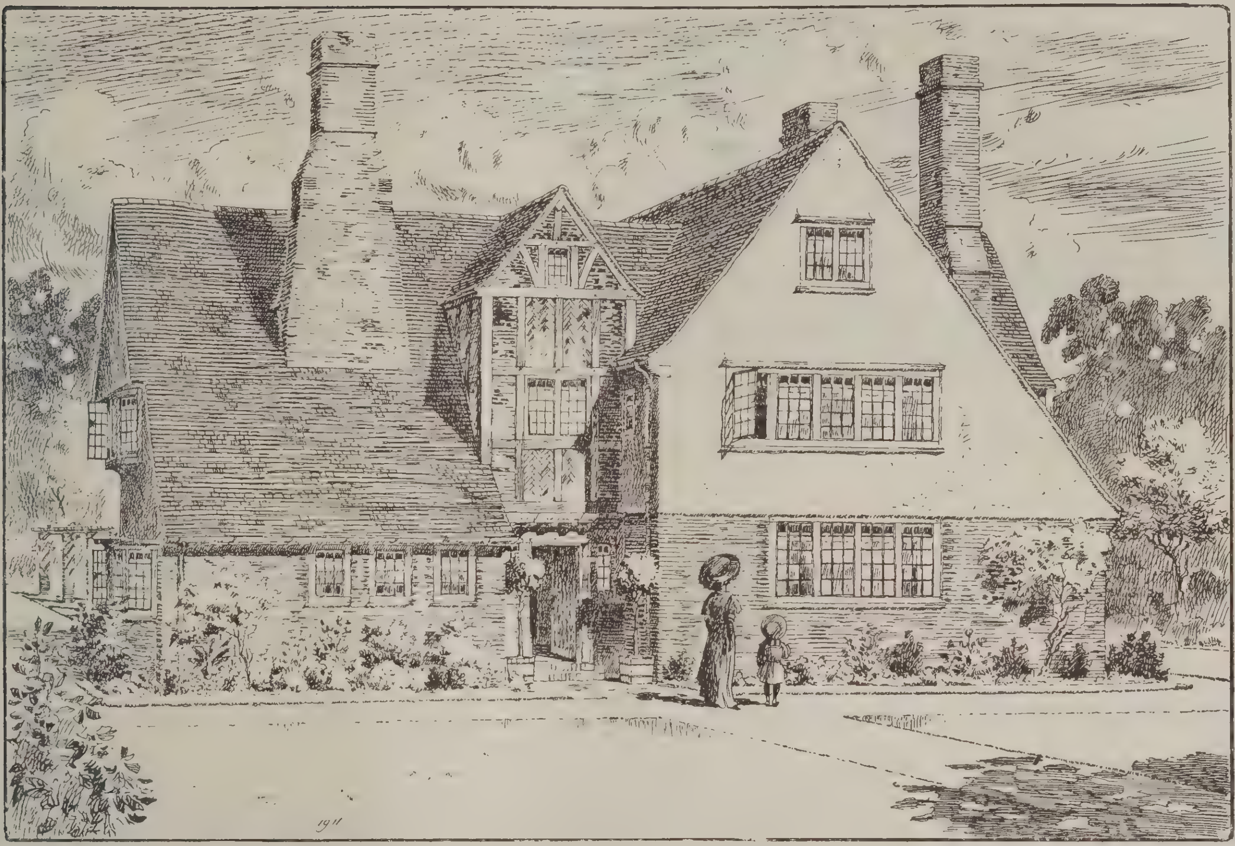


GROUND FLOOR PLAN.

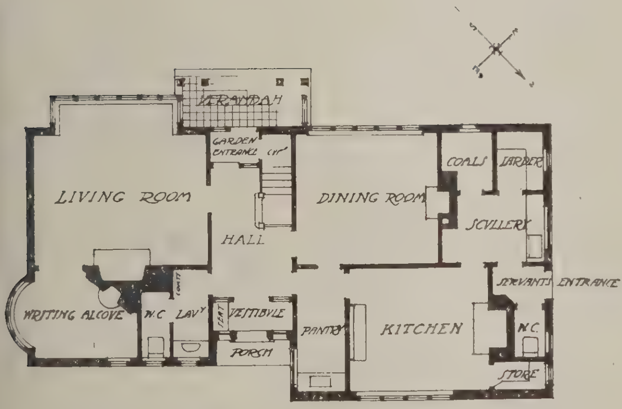
By a bungalow is usually understood a house of unpretentious character, with the accommodation mainly arranged on the ground floor. Occasionally the term is loosely used to include small houses with most, if not all, the bedrooms upstairs. In this case, the stricter interpretation of the name is preserved and all rooms are on the ground floor level, with a gazebo above the main roof. There are six bedrooms, living room and dining-room, as well as a large verandah or open-air sitting-room.

The design is intended to be carried out in red brick and rough-cast with half-timbering above and tile roofs. The cost of this bungalow would be about £1200 with the rooms of the fairly large size shown, but could be reduced to £1000 with smaller rooms.

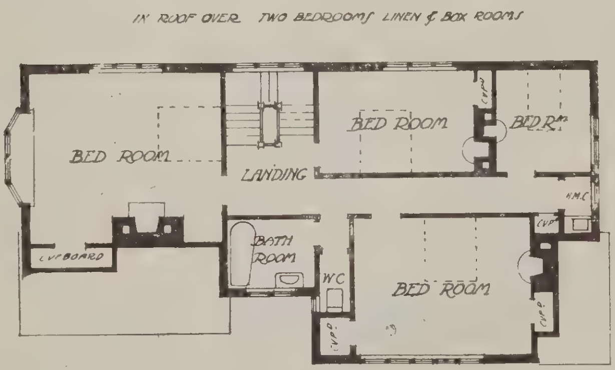
DESIGN NO. 11.



ENTRANCE FRONT.



GROUND FLOOR



FIRST FLOOR

This picturesque little house is economically and conveniently planned with a good-sized living-room, having a small writing alcove or sanctum opening from it, dining-room and six bedrooms, besides well arranged kitchen offices. The house is intended to be built of brick with rough-cast in the upper storeys and tile roofs, and the cost of erection would be about £1000.

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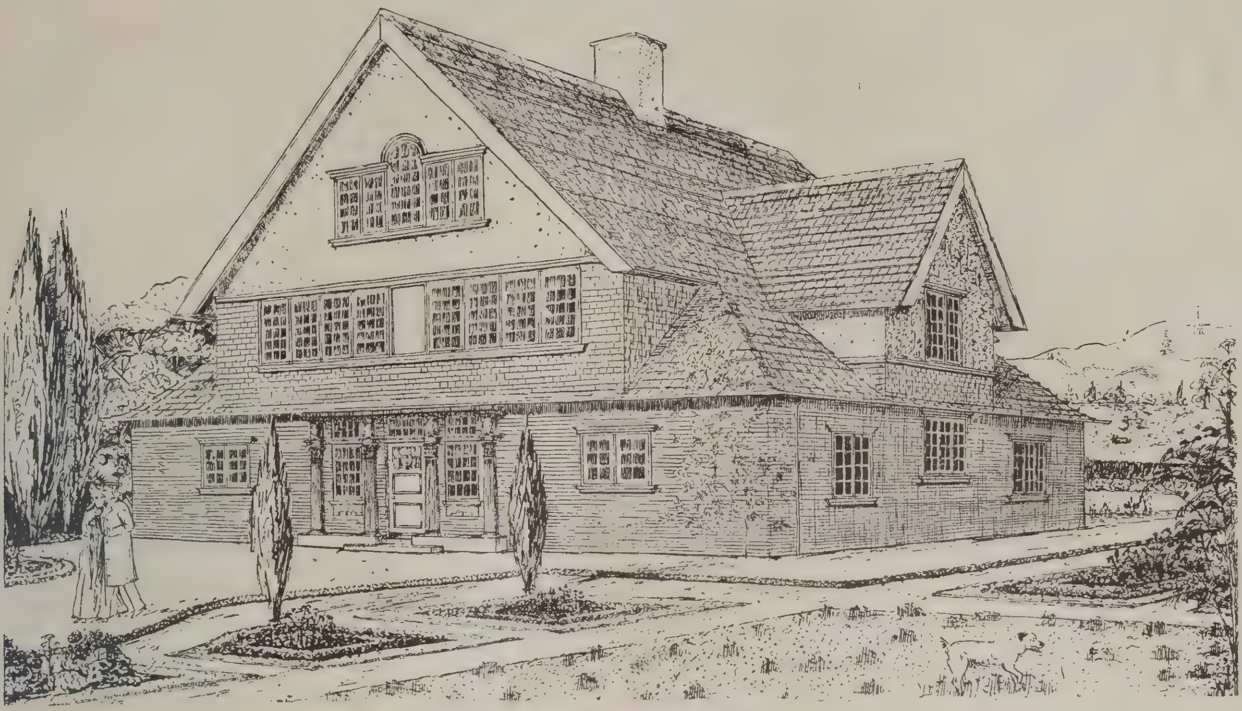
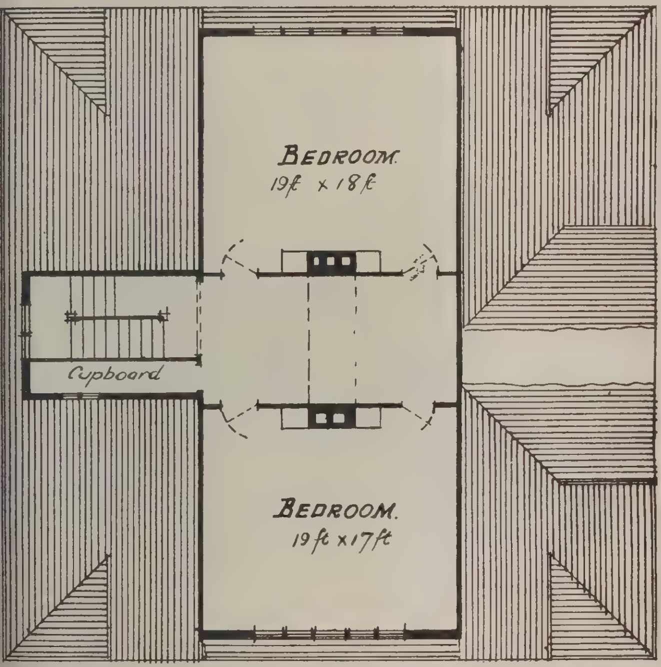
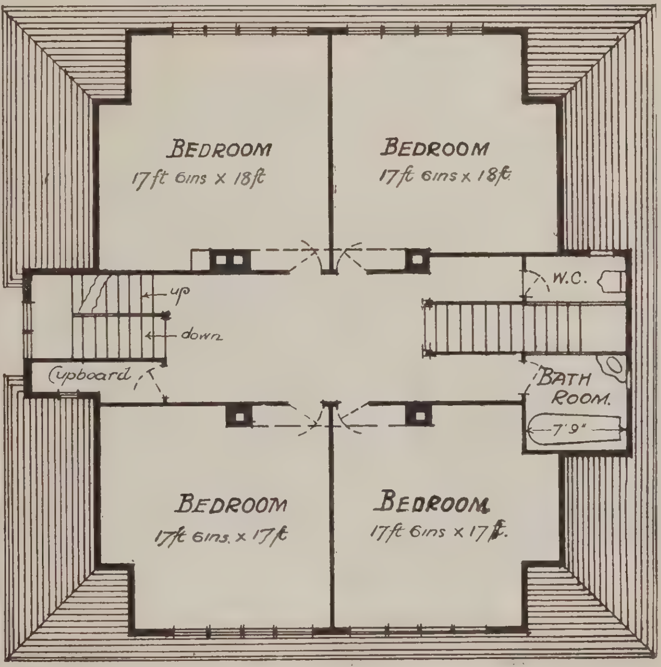
DESIGN NO. 12.



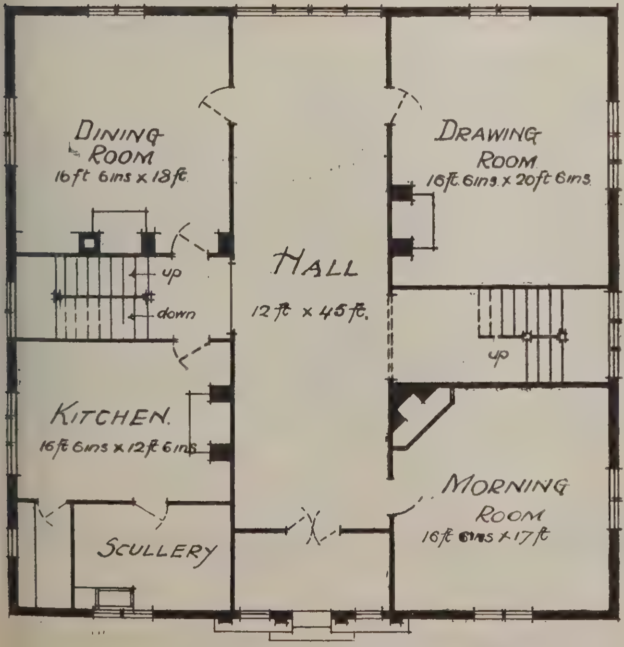
THE ENTRANCE FRONT.



TOP FLOOR PLAN.



FIRST FLOOR PLAN.



GROUND FLOOR PLAN.

This is a modified form of bungalow in that the bedrooms are arranged in the roof so that the building has the one storey and roof which characterise the bungalow type of house. This is a cheap type of house to build, and with three reception rooms, a large gallery-hall and six bedrooms, all of good size, could be built for about £1500.

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EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Bolton.—Jan. 6.—The Lancashire and Cheshire Miners' Federation invite architects in independent practice within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1s. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton. N.B.—The time for sending in applications and designs has been extended from Dec. 1 to Jan. 6.

Glasgow.—Nov. 6.—The Glasgow Provincial Committee propose to erect at Jordanhill, Glasgow, a Training College to accommodate 1,200 students, and to aid them in selecting a limited number of architects to compete for the intended work, they invite architects willing to take part in the competition to send in their names by Nov. 6, with twenty copies of a statement containing such information as they may think likely to advance their claims. Canvassing will be a disqualification. Mr. D. Macleod, Director of Studies, Technical College, Glasgow.

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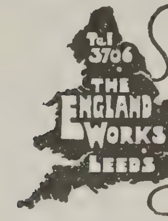

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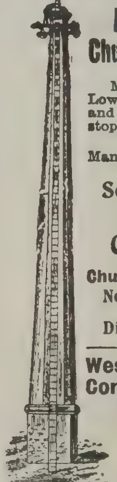
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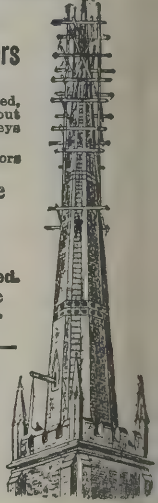

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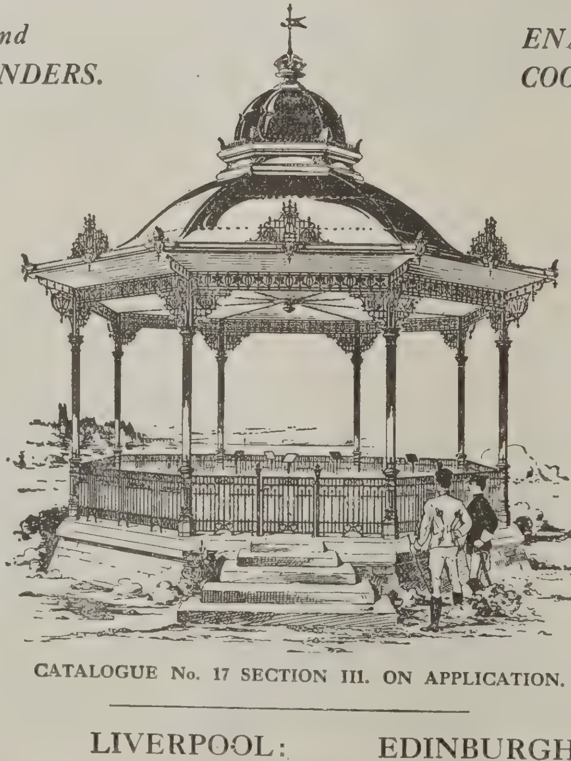

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EDINBURGH: 22 Picardy Place.
GLASGOW: 32 & 34 Bothwell Street.
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Hastings.—The Joint Committee of the East Sussex Iospital and the King Edward VII. Memorial Fund invites rchitects to submit designs in competition for the proposed ew hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been ppointed assessor. Premiums of £125, £75, and £50 are ffered. Conditions and instructions may be obtained (on ayment of £1 1s. deposit) from Mr. W. M. Rhodes, East ussex Hospital, Hastings.—N.B. The time for sending in pplications and designs has been extended until December 30.

Rochdale.—Dec. 22.—The Board of Management of the nfirmary invite architects practising in Rochdale prior to anuary 1, 1911, to submit plans, designs, and estimates or extending the present buildings. Conditions of competiion, with other information, together with instructions to rchitects, can be obtained on application to the secretary. n assessor has been appointed by the committee. Mr. T. lvyn Kershaw, secretary, Secretary's Office, the Infirmary, ochdale.

Sale.—Nov. 4.—The Sale and Ashton-upon-Mersey Disrict Administrative Sub-Committee for Education invite rchitects practising within a radius of 20 miles of Manhester to make application for entry to a limited competition or designs for the proposed Council schools at Sale and shton-upon-Mersey, each of which is intended to accommoate 300 children. The county "regulations for the renuneration, &c., of architects engaged to design and superntend the erection of school buildings in the county" will e observed in appointing an architect. Applications should e sent on or before Nov. 4 to Mr. Walter Taylor, clerk to he Sub-committee, Public Free Library and Technical chool, Sale.

Sofia (Bulgaria).—Dec. 15.—H.M. Minister at Sofia eports that the "Commission Permanente de l'arrondissenent de Sofia" invite the submission of designs for a muniipal building which it is proposed to erect at that place. 'our prizes to the value of 7,000 fr. (£280), 3,000 fr. (£120), ,000 fr. (£80), and 1,000 fr. (£40) respectively will be warded. Architects desirous of competing must submit heir designs at Sofia by Dec. 15. Copies of the programme, c., may be obtained on application to the "Commission," s above. A copy of the programme, together with a drawng, may be seen at the Commercial Intelligence Branch f the Board of Trade, 73 Basinghall Street, E.C.

Stafford.—The Corporation invite designs for a public brary. A professional assessor has been appointed. Send 1 deposit, which will be returned on receipt of a bona-fide esign, or the return of the conditions, &c., within one onth of receipt. Mr. William Plant, A.M.Inst.C.E., orough engineer, Borough Hall, Stafford.

Stockport.—Nov. 6.—Architects who would be willing, invited by the Guardians of the Stockport Union, to submit ompetitive designs of new buildings for mental patients about 250 beds), to be erected in connection with their inrmary at Stepping Hill, near Stockport, are requested to ubmit their names not later than Nov. 6, together with such nformation as they may consider likely to advance their aims to be admitted to the competition. Premiums of 100, £50, and £25 will be awarded, and a professional ssessor will be employed. Mr. Charles F. Johnson, clerk to e Guardians, Union Offices, Stockport.

Uruguay.—Jan. 30.—The Ministry of Public Works nvite competitive plans for a town-improvement scheme nd for a new Government Palace at Monte Video. remiums of about £1,060, £640, and £425 are offered for e former scheme, and about £2,215 and £850 for the latter. esigns for the Government Palace must be submitted by an. 29, 1912, and for the town-improvement scheme by an. 30. A statement of the conditions of the competition n Spanish) may be seen by British firms at the Commercial ntelligence Branch of the Board of Trade, 73 Basinghall treet, London, E.C.

Wales.—Nov. 30.—The Cardiff Education Committee vite designs and estimates for a technical institute prosed to be erected in Cathays Park. Mr. J. S. Gibson, chitect, will act as assessor. Full particulars will be sent architects on application, accompanied by a deposit of 2 2s., which will be returned to all architects submitting na-fide designs or who return the conditions within six eeks. Mr. J. Jackson, director of education, Education ffices, City Hall, Cardiff.

The Town Council of Helensburgh has issued schedules on new scheme for reclaiming three acres of land from the a. This will be done by building a sea wall about 900 feet ng and 350 feet out into the water.

CONTRACTS OPEN.

Banbury.—Nov. 6.—For erection of a vagrants' shelter at the Union workhouse. Mr. J. Timms, architect, 48 Parsons Street, Banbury.

Bexhill.—Nov. 23.—For erection of infants' school. (Mr. H. P. Burke Downing, F.R.I.B.A., architect, 12 Little College Street, Westminster, S.W.) Send applications and £2 2s. deposit by Nov. 4 to Mr. Arthur B. Lawson, secretary, Education Offices, Bexhill.

Bournemouth.—Nov. 10.—For the cliff protection at Alum Chine, and other works in connection therewith, for the Town Council. Deposit £1 1s. Mr. F. W. Lacey, M.I.C.E., borough engineer, Municipal Offices, Bournemouth.

Bournemouth.—Nov. 10.—For erection of elementary schools, Cranleigh Road, Stourfield, for 400 children. Deposit £1 1s. The Borough Engineer, Municipal Buildings, Bournemouth.

Carleton.—Nov. 6.—For the various works required in the erection and completion of a residence at Carleton, Pontefract. Send names by Nov. 6 to Mr. W. J. Tennant, architect and surveyor, Pontefract.

Chipping Sodbury.—Nov. 18.—For alterations and additions to the Grammar School. Deposit £1 1s. Mr. R. S. Phillips, architect, Shire Hall, Gloucester.

Chorley.—Nov. 6.—For carrying out alterations, furnishing and decoration to the Board-room, &c., at the workhouse. Mr. R. E. Aspden, clerk, the Union Offices, 14 High Street, Chorley.

Church.—Nov. 11.—The Accrington and Church Outfall Sewerage Board is prepared to receive tenders for the various works required to be done in enlarging the existing septic tanks, the construction of storm water and other sewers, sedimentation, and storm tanks, sludge well, pump house, culverts, screening shed, bacteria beds, and other works in connection therewith, at the sewage works, Church. Deposit £5. Mr. William J. Newton, Assoc.M.Inst.C.E., engineer to the Board, Town Hall, Accrington.

Churwell (Yorks).—Nov. 10.—For the bricklayer, joiner, ironfounder, patent glazier, and plumber's work required in extension of tannery and tan pits, extension of warehouse, lime pits, &c., at Milshaw Leather Works. Mr. T. A. Buttery, L.R.I.B.A., architect, Queen Street, Morley, and 1 Basinghall Square, Leeds.

Colchester.—Nov. 6.—For the removal of the dwarf wall, palisading, &c., on church properties in Eld Lane, and building new wall and reinstating the palisading, &c., to the new line agreed upon. Mr. H. Goodyear, A.M.I.C.E., borough engineer and surveyor, Colchester.

Dewsbury.—Nov. 6.—For a pair of semi-detached villas at West Park Street, joiners, plumbers, and plasterers (full trades), masons and bricklayers (labour only). Messrs. Bickers & Co., Ltd., furnishers, Dewsbury.

Fartown.—Nov. 6.—For erection of a block of four model dwellings on the Avenues Estate, Fartown, Yorks. Send names by Nov. 6 to Mr. O. White, M.S.A., architect and surveyor, 19 John William Street, Huddersfield.

Folkestone.—Nov. 16.—For the work in connection with erection of the Harvey Grammar School for 150 boys in Cheriton Road. (Mr. E. Finn, architect, 19 Watling Street, Canterbury.) Send names and £1 1s. deposit at once to Mr. H. J. Moody, quantity surveyor, 5 Cheriton Place, Folkestone.

Hindley.—Nov. 14.—For hospital extensions, Sandy Lane, for the Urban District Council. Mr. O. P. Abbott, surveyor, Council Offices. Tenders to be sent to Mr. Thomas Robey, clerk, Council Offices, Hindley.

Kendal.—For converting a portion of 21 Stramongate into shop premises. Mr. S. Shaw, F.R.I.B.A., architect, 45 Highgate, Kendal.

London.—Nov. 6.—For supply and erection of two coal bunkers at the electric-lighting station, Tottenham Lane, Hornsey, for the Town Council. Mr. E. J. Lovegrove, borough engineer and surveyor, Municipal Offices, Highgate, N.

London.—Nov. 7.—For erection of a boys' school, Strand-on-the-Green, Chiswick, W., for the Chiswick Urban District Council. Deposit £5. Mr. E. Willis, F.S.I., surveyor of the Council, Town Hall, Chiswick, W.

London.—Nov. 11.—For erection of a public elementary school at Stanford Road, Norbury, to provide accommodation for 852 scholars (Mr. H. Carter Pegg, F.R.I.B.A., Thornton Heath). Send names and £1 1s. deposit by Nov. 4 to Mr. J. Smyth, clerk to the committee, Education Offices, Katharine Street, Croydon.

London.—Nov. 13.—For erection of new offices for the Board of Agriculture and Fisheries. Deposit £3 3*s*. Mr. H. A. Collins, A.R.I.B.A., at H.M. Office of Works, &c., Storey's Gate, S.W.

London.—Nov. 21.—For the renewal of a portion of the steel superstructure of the Smithfield Goods Station, for the Great Western Railway. The office of the Engineer, Paddington Station, London, W.

Ludgvan.—For carrying out certain works at Ludgvan Church (Messrs. St. Aubyn & Wadling, architects, Lamb Building, Temple, E.C.). Apply at the Rectory, Ludgvan, Cornwall.

Nelson.—Nov. 25.—For the erection of central sanitary conveniences in Vine Street: (1) Excavator, drainer, mason and bricklayer's work; (2) carpenter and joiner's work; (3) plumber and glazier's work; (4) painter's work. Mr. W. Shackleton, A.M.I.C.E., borough engineer and surveyor, Town Hall, Nelson.

Nelson (Lancs.).—Nov. 25.—For the following works, for the Parks Department:—(1) Foundations to bandstand and construction of walks at Victoria Park; (2) new bowling green, Carr Road; (3) bowling greens, &c., Thomas Street; (4) bowl house at Thomas Street bowling green. Mr. W. Shackleton, A.M.I.C.E., borough engineer and surveyor, Nelson.

Newbridge.—Nov. 11.—For proposed improvements to playground and ventilation at the Newbridge Council Schools, Cornwall. Mr. S. Hill, architect to the Committee, Green Lane, Redruth.

Newton Abbot.—Nov. 7.—For additions to the nurses' home and laundry at the workhouse. Mr. Samuel Segar, architect, Union Street, Newton Abbot, Devon.

Portland.—Nov. 18.—For reslating the roof, laying a cement concrete floor, and other work, at the R.G.A. Drill Hall, Easton Road. Mr. F. T. Maltby, A.M.I.C.E., architect and surveyor, Dorchester.

Prestwich (Lancs).—Nov. 17.—For erection of an infirmary for female patients at the County Lunatic Asylum. Deposit £2 2*s*. Mr. T. Chadwick, A.R.I.B.A., architect, 16 Princess Street, Manchester.

Radcliffe.—Nov. 7.—For the erection and completion of sub-station at the electricity works, Lomax Street. Deposit £1 1*s*. Mr. W. L. Rothwell, engineer, Council Offices, Radcliffe, Lancs.

Reading.—Nov. 17.—For the construction of a concrete bathing place, together with campsheathing, footbridges, buildings, galvanised iron screen fences, and other works in connection therewith, at Coley, Reading. Mr. J. Bowen, A.M.I.C.E., borough engineer and surveyor, Town Hall, Reading.

Rotherham.—Nov. 10.—For (1) excavating playground; (2) asphalting playground; (3) alterations to outbuildings; (4) alterations to lavatories at the Wellgate Council School; and (5) repairing playground at the Blackburn Council School. Mr. J. Platts, High Street, Rotherham.

Salford.—Nov. 15.—For new buildings, boiler, engine, and machinery at the Agecroft depôt for slab-making plant, for the Corporation. Building Surveyor, Town Hall, Salford, and Superintendent, Lighting, &c., Department, Wilburn Street, Salford.

Salisbury.—Nov. 7.—For the following works, for the Salisbury Rural District Council, viz.: (1) For building a bridge at East Grimstead; (2) for making-up levels to the bridge with chalk; (3) for gravelling the bridge and approaches. Messrs. John Harding & Son, architects, 58 High Street, Salisbury.

Scotland.—Nov. 6.—For the mason, carpenter, and slater's work of alterations to Rathen Public School, Fraserburgh. Mr. W. E. Gauld, A.R.I.B.A., architect, Saltoun Chambers, Fraserburgh.

Scotland.—Nov. 6.—For the mason, carpenter, and slater works of the following cottages on Haddo House Estates (Aberdeen), viz.: Parish of Fyvie, Bruckleseat, double cottage; parish of Tarves, Cauldhame, single cottage; Cairdseat, single cottage. Mr. C. G. Smith, factor, Haddo House.

Selby.—Nov. 7.—For flooring over swimming bath at the public baths. Mr. Bruce Gray, F.R.S.Edin., New Lane, Selby.

Shipton Bellinger.—Nov. 14.—For erection of a Council school for 99 children and teacher's house. Deposit £2 2*s*. Mr. A. L. Roberts, architect to the Education Committee, The Castle, Winchester.

Stanwell.—Nov. 10.—For erection of the various buildings and other appurtenant works in connection with the isolation hospital for infectious diseases at Stanwell, Middlesex, for the Staines Joint Hospital Committee. Deposit £5 5*s*. Mr. G. W. Manning, architect, London Road, Ashford, Middlesex.

Stoke-upon-Trent.—Nov. 8.—For the execution of (1) certain repairs and alterations, and (2) painting and decorating at the Union offices and relief offices, High Street. The Architect, Union Offices, Stoke.

Thornaby-on-Tees.—Nov. 7.—For new classrooms, manual instruction room, and other additions to the Arthur Head Schools, for the N.R. of Yorkshire County Council. Apply by Nov. 7 to Messrs. Clark & Moscrop, F.R.I.B.A., architects, Feethams, Darlington, or 10 Albert Road, Middlesbrough.

Tredington.—Dec. 2.—For erection of an isolation hospital with outbuildings and for alterations and additions to the existing hospital at Tredington, near Tewkesbury. Deposit £1 1*s*. Mr. J. Villar, F.S.I., M.S.A., architect, 5 Essex Place, Cheltenham.

Trowbridge.—Nov. 14.—For erection of a Council school at Trowbridge, Wilts. Deposit £5. Mr. J. G. Powell, county surveyor, Trowbridge.

Wales.—Nov. 6.—For the erection of 21 houses at Abercanaid, for the Abercanaid No. 2 Building Club. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Nov. 6.—For building a transept with classrooms under and other works at the parish church of St. Thomas, Clydach Vale (Trealaw Station, T.V.R.). Mr. J. W. Rodger, architect, 14 High Street, Cardiff.

Wales.—Nov. 8.—For taking down old cottages at Little Isle of Wight, Merthyr, and erecting four new cottages on site. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Nov. 13.—For erection of new Derllwyn school at Maesteg, Glam., which will provide accommodation for 1,124 scholars. The Maesteg Police Station and at the Glamorgan County Council Offices, Westgate Street, Cardiff.

Wales.—Nov. 14.—For extension of Haverfordwest Post Office, for the Commissioners of H.M. Works and Public Buildings. The Postmaster at Haverfordwest and H.M. Office of Works, &c., Storey's Gate, S.W.

Wales.—Nov. 15.—For the erection of a sea wall at Cwmyreglwys, Dinas, 90 feet long, 8 feet high, and 4 feet tapering to 3 feet wide, for the St. Dogmaels Rural District Council. Mr. D. Davies, clerk, Quay Street, Cardigan, or Mr. W. R. Davies, road surveyor, Cambria Terrace, Newport, Pembroke.

Wales.—Nov. 16.—For the provision and erection of an automatic electric lift at the workhouse infirmary, Stow Hill, Newport (Mon.). Mr. H. J. Griggs, A.R.I.B.A., architect, Metropolitan Bank Chambers, Newport, Mon.

Wales.—Nov. 21.—For erection of new girls' school at Troedyrhiw, Merthyr Tydfil. The Depupty-Surveyor, Town Hall, Merthyr Tydfil.

Walsall Wood.—Nov. 11.—For the enlargement by about 150 places of Walsall Wood Council School, in the urban district of Brownhills, Staffordshire. Send names and £1 1*s*. deposit by Nov. 11 to Mr. G. Balfour, director of education, County Education Offices, Stafford.

Warrington.—Nov. 10.—For erection of a boys' department of the Bolton Council School, Latchford. (Messrs. Wright & Hamlyn, architects, Warrington.) Deposit £1 1*s*. Mr. J. Moore Murray, M.Sc., Education Office, Sankey Street, Warrington.

Waverton.—Nov. 11.—For erection and completion of a house. Mrs. Fishwick, Waverton, near Wigton.

Whickham.—Nov. 9.—For erection of conveniences and mortuary at Dunston, and underground conveniences at Whickham, for the Whickham Urban District Council. Deposit £1 1*s*. Mr. J. B. Renton, surveyor, Council Offices, Whickham.

Whitehaven.—Nov. 9.—For alterations and repairs at 70 and 71 Peter Street. Mr. J. Glaister, High Church Street, Whitehaven.

The Swansea Corporation on Monday adopted a scheme of sewerage prepared by Mr. Wyrill, the borough engineer, which is estimated to cost £225,000. The sewage is to be discharged at a point beyond the Mumbles Head.

The West Ward (Westmorland) Rural District Council have adopted a scheme of water supply for sixteen of their parishes which it is estimated will involve an outlay of £35,000. The plans, which have been prepared by Mr. Joseph Graham, C.E., Carlisle, will be submitted to the Local Government Board.

TENDERS.

CHESTER.

For the erection of a residence in Curzon Park. Messrs. Dickens-Lewis & Haymes, architects, Shrewsbury.

Welsh	£1,992	10	0
Vernon & Sons	1,990	0	0
Parker & Bros.	1,893	0	0
Morton Browne	1,885	0	0
Mayers, Son & Co.	1,883	0	0
Brown	1,849	0	0
McLallan & Bros.	1,840	0	0
Thomas	1,799	0	0
Higley	1,797	17	0
Treasure & Son, Ltd., Shrewsbury (*accepted*)	1,697	0	0

IRELAND.

For erection of a professor's house and gate lodge, and alterations to Magee College, Londonderry. Messrs. Robinson & Davidson, C.E., A.R.I.B.A., architects, Londonderry.

Fulton	£4,621	10	0
Sweeny	4,467	0	0
Laverty & Sons	4,393	0	0
Ballintine, Ltd.	4,103	10	0
Colhoun, Londonderry (*accepted*)	3,960	0	0

LEYTONSTONE.

For additions to the nurses' home at their infirmary, Whipp's Cross Road, Leytonstone, N.E., for the Guardians of the West Ham Union. Mr. F. J. Sturdy, F.R.I.B.A., architect, 45 Finsbury Pavement, E.C.

Griggs & Son	£18,700	0	0
Gladding & Co.	16,796	0	0
Killby & Gayford	16,115	0	0
Strong & Co.	15,998	0	0
Abbott & Charlton	15,998	0	0
Jerram	15,820	0	0
Blake	15,800	0	0
Wallis & Son	15,687	0	0
Sheffield Bros.	15,665	0	0
Maddison	15,625	0	0
Chessum & Sons	15,577	0	0
Holliday & Greenwood	15,233	0	0
F. & H. F. Higgs	15,170	0	0
Webster & Sons	15,165	0	0
J. & J. De[illegible]	[illegible]056	0	0
Davey & Armitage	14,847	0	0
Myall & Upson	14,647	0	0
Lawrence & Son	14,624	0	0
Coxhead	14,453	0	0
Symes	14,437	0	0
Carter	13,995	0	0
Willmott, Woodford Green (*accepted*)	13,950	0	0

LUTON.

For erection of a new block of buildings for women's infirmary and nurses' home, at the workhouse. Messrs. Gotch & Saunders, architects, Kettering.

Women's Infirmary.

Jeyes & Garrett	£7,787	0	0
Saunders & Son	7,600	0	0
Cuthbert	7,450	0	0
George	7,320	0	0
Buckingham	7,289	0	0
Barber	7,264	2	5
Johnson	7,210	0	0
Higgs	7,100	0	0
Brown & Son	6,979	0	0
T. & E. Neville	6,963	0	0
Hacksley Bros.	6,879	0	0
Drever	6,808	0	0
Clarke	6,792	0	0

Nurses' Home.

Johnson	£1,354	0	0
Barber	1,241	1	1
Jeyes & Garrett	1,211	0	0
Buckingham	1,209	0	0
Cuthbert	1,200	0	0
Higgs	1,198	0	0
George	1,190	0	0
Saunders & Son	1,176	0	0
Hacksley Bros	1,172	0	0
Brown & Son	1,152	0	0
T. & E. Neville	1,149	0	0
Drever	1,111	0	0
Clarke	996	0	0

LONDON.

For the enlargement of the Berkshire Road School, Hackney, by 275 places, and the erection of a handicraft centre for 20 boys in connection therewith, for the L.C.C.

Reason	£3,880	10	0
Shurmur & Son	3,445	0	0
Woodward & Co.	3,375	18	11
Williams & Son	3,188	0	0
Brand, Pettit & Co.	3,134	0	0
Willmott & Sons	3,097	1	9
Todd & Newman	3,073	0	0
L. H. & R. Roberts	2,957	0	0
Lawrance & Sons	2,946	0	0
Stevens & Sons	2,887	18	1
Stewart	2,882	12	2
Roome & Co.	2,833	0	0
J. Chessum & Sons, 7a South Place (*accepted*)	2,783	2	2
Architect's estimate	2,905	0	0

For the work of providing an additional bedroom and enlarging the kitchen at the East Lodge, Avery Hill, London, for the L.C.C.

Bickerton	£205	10	0
Barker & Co.	167	0	0
Line	165	0	0
Lowe & Co.	157	0	0
W. Pollock, Eltham (*recommended*)	142	0	0
Architect's estimate	160	0	0

For the structural improvement of the Lyham Road School, Norwood, for the London County Council.

Garrett & Son	£17,836	0	0
Appleby & Sons	16,518	0	0
Parker & Sons	15,602	0	0
Holliday & Greenwood	15,369	0	0
Wallis & Sons	15,242	0	0
Kirk & Randall	14,948	0	0
Johnson & Co.	14,906	0	0
Godson & Sons	14,722	0	0
Holloway	14,444	0	0
Blake	14,352	3	0
Leng	14,246	0	0
J. & M. Patrick	14,196	0	0
J. & C. Bowyer, Upper Norwood (*accepted*)	13,988	0	0
J. Smith & Sons (*withdrawn*)	13,892	0	0
Akers & Co. (*withdrawn*)	13,275	0	0
Architect's estimate	14,493	0	0

For the erection of fifteen cottages on the first part of Section C of the Norbury L.C.C. estate, each to contain four rooms and a scullery.

Chas. Wall, Ltd.	£3,825	0	0
Fletcher	3,762	0	0
Smith & Sons	3,636	0	0
F. & H. F. Higgs	3,585	0	0
Gathercole Bros.	3,533	0	0
Nicholls & Son	3,443	0	0
F. & T. Thorne	3,439	0	0
Rowley Bros., Tottenham (*recommended*)	3,241	0	0
Architect's estimate	3,531	0	0

For the erection of permanent-way depôts at Leven Road, Poplar, for the L.C.C. tramways.

Colls & Sons	£15,940	0	0
F. & H. F. Higgs	15,500	0	0
Chas. Wall, Ltd.	15,000	0	0
Holloway Bros., London	15,000	0	0
Rowley Bros.	14,497	0	0
Holloway	14,476	0	0
Kerridge & Shaw	14,444	0	0
J. & C. Bowyer	14,423	0	0
Kirk & Randall, Woolwich, S.E. (*recommended*)	14,325	0	0
Architect's estimate	14,100	0	0

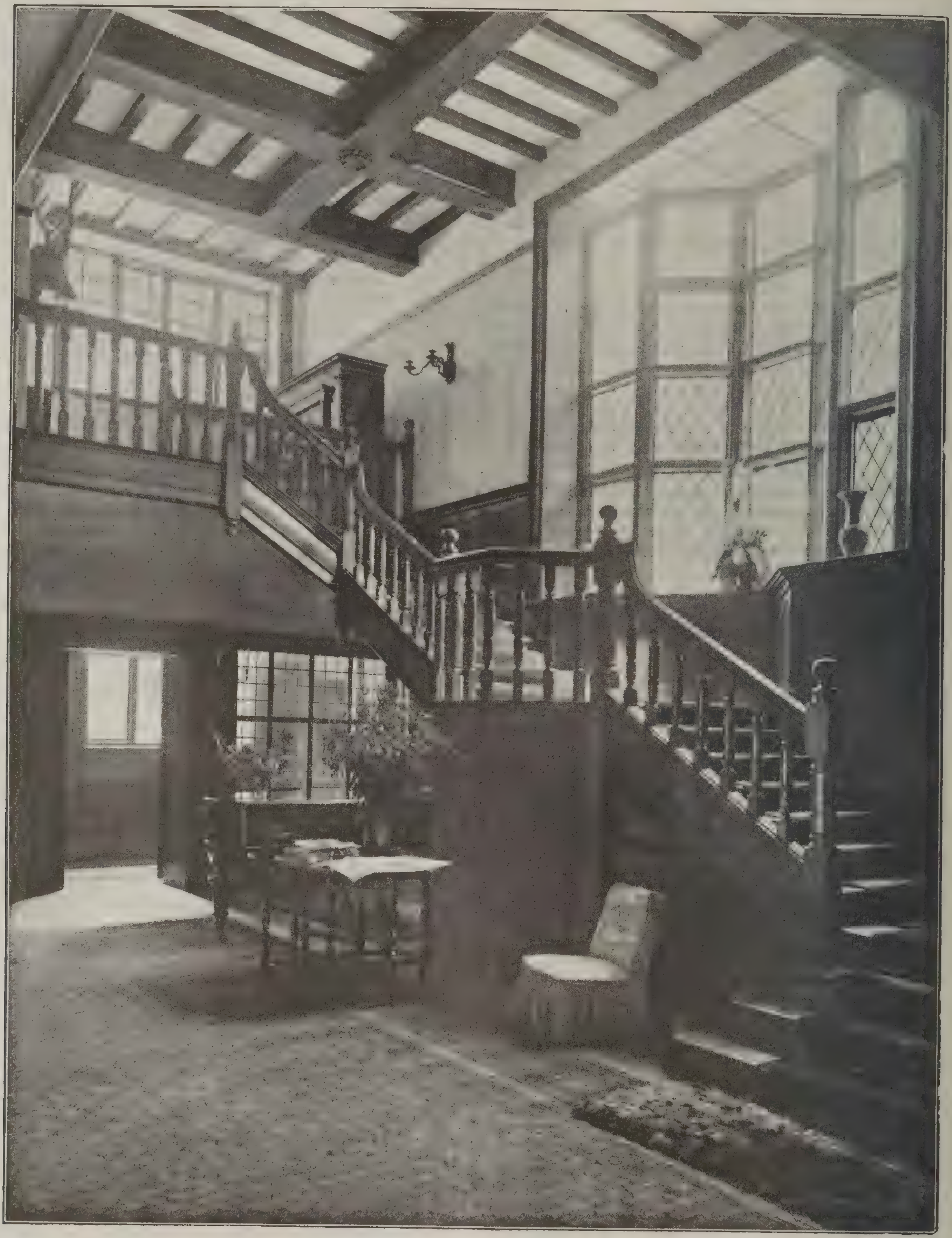
MACCLESFIELD.

For the erection of a cookery centre and workshop at the Technical School, on a site adjoining in Old Park Lane.

Willings	£3,375	0	0
Gorton & Wilson	3,090	0	0
Bull	2,998	0	0
John Clayton, Macclesfield (*accepted*)	2,995	0	0

For erection of an engine-house and alterations to the existing buildings.

Wellings	£749	0	0
Bull	687	0	0
Clayton (*accepted*)	680	0	0
Gorton & Wilson	650	0	0



STAPLEFIELD PLACE THE HALL AND STAIRS.—Messrs. Clayton & Black, Architects.

WALES.

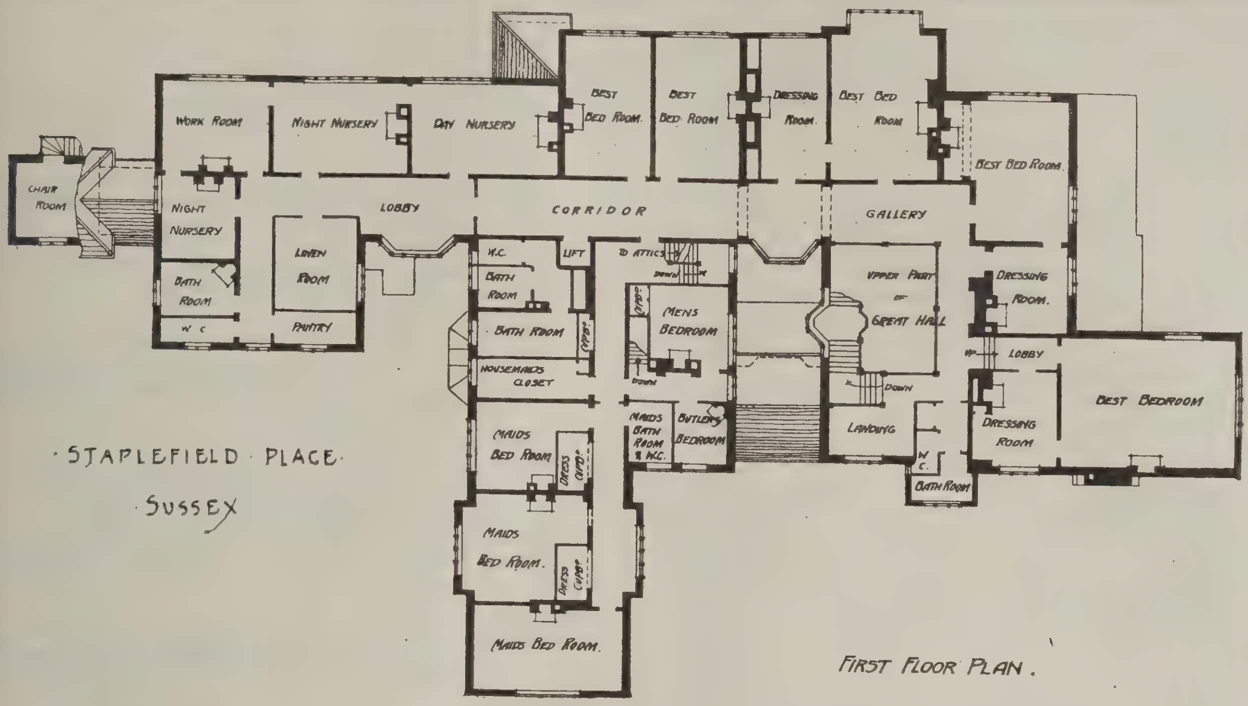
For the erection of a village hall and institute at Llanfair-caerinion (near Welshpool). Messrs. Dickens-Lewis & Haymes, architects, Shrewsbury.

Pace	£4,745	0	0
Price	4,195	0	0
Jones & Evans	4,162	0	0
Higgins	4,120	0	0
Thomas & Sons	4,025	4	1
Bowdler & Co.	4,000	0	0
Treasure & Son	3,989	0	0
Bickerton	3,971	10	0
W. Higley, Pontesbury (*accepted*)	3,464	15	0

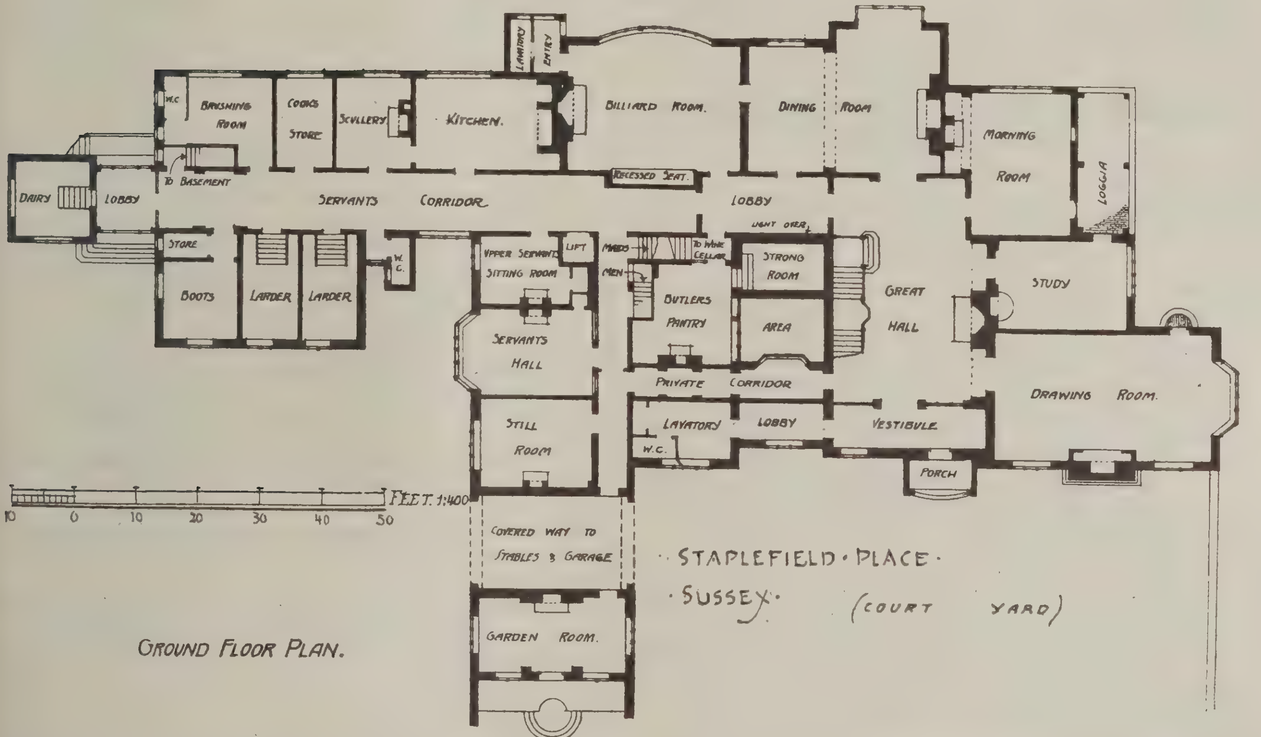
WALES—*continued.*

For erection of 100 (or more) workmen's houses at Blackwood (Mon.), for the Oakdale Navigation Colliery Co., Ltd. Mr. A. F. Webb, M.S.A., architect, Blackwood.

Lawes Bros.	£28,028	0	0
Wellis	27,820	0	0
Passmore & Perkins	26,156	0	0
Smith	25,480	0	0
Lewcombe	24,882	0	0
Jones Bros.	22,880	0	0
Davies & Williams	22,074	0	0
Gregory Bros.	21,092	0	0
Jones, Wattsville (*accepted*)	21,060	0	0



FIRST FLOOR PLAN.



GROUND FLOOR PLAN.

WALES.

For erection, completion, and maintenance for six months of a semi-permanent school building to accommodate 376 children, in connection with the Broughton Pentre Council School, near Wrexham, for the Denbighshire Education Authority. Contract 1: Permanent works, which include foundations to school buildings and latrines. Contract 2: The superstructure of school building, to be of wood framed, lined inside with matchboarding and outside with weatherboarding, and roof covered with Welsh slates and asphalte. Mr. W. D. Wiles, county architect, 42a High Street, Wrexham.

Contract 1.

Jones	£1,448	0	0
Thomas	1,390	0	0
Treasure & Co.	1,239	0	0
Lewis Bros.	1,227	0	0
Griffiths	1,198	0	0
Williams	1,171	0	0
Wycherley	1,165	0	0
Woolley	1,050	8	6
Jones, Cefn, Ruabon (*accepted*)	987	0	0

WALES—*continued.*

Contract 2.

Bundy	£3,221	0	0
Wycherley	2,700	0	0
Jones	2,684	0	0
Ginger, Lee & Co.	2,646	18	0
Humphreys	2,631	0	0
Williams	2,543	4	1
Lewis Bros.	2,490	5	0
Thomas	2,340	0	0
Harrison & Co.	2,263	7	3
H.S. Building Co.	2,216	0	0
Cowieson & Co.	2,205	16	2
Griffiths	2,158	0	0
Treasure & Co.	2,157	0	0
Woolley	2,126	8	2
Jones	2,097	0	0
Smith & Co.	2,050	0	0
Harbrow, South Bermondsey Station, S.E. (*accepted*)	2,049	0	0

SUDBURY (SUFFOLK).

For erection of a post office at Sudbury. Mr. A. Howard, L.R.I.B.A., architect, Cornard Road, Sudbury.

Bennett	£3,281	15	0
Trudgett	3,200	0	0
Gayford	3,113	0	0
Linzell	3,108	0	0
Mason & Son	2,880	0	0
Mauldon & Sutton	2,858	0	0
Grimwood & Sons, Sudbury (*accepted*)	2,499	10	0

WINCHESTER.

For erection of an elementary school on the Danemark Estate. Mr. A. H. Johnson, architect, Winchester.

Gluyas	£4,900	0	0
Stevens & Co.	4,890	0	0
Grace & Sons	4,882	12	9
Acock & Co.	4,814	0	0
Fitt	4,785	0	0
Wise & Landsdell	4,780	0	0
Goodall & Son	4,779	0	0
Benfield & Loxley	4,778	0	0
Hughes	4,778	0	0
Draper	4,695	0	0
Jenkins & Sons	4,685	0	0
Musselwhite & Sapp	4,643	0	0
Hunt	4,602	0	0
Wort & Way	4,599	10	6
Colborne	4,599	10	0
Avery Bros.	4,560	0	0
Playfair & Toole	4,540	0	0
Salter, Southsea (*accepted*)	4,494	0	0

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

Berkshire.

Chaddleworth.—School for the Trustees of Saunders' Charity (accommodation for 72 children).

Childrey.—Council School in reinforced brickwork.

Crowthorne.—Church of England School enlargement (total accommodation for 405 children).

Didcot, Faringdon and Wallingford.—Single-roomed, Manual Instruction and Cookery centres (total accommodation for 108 students). Messrs. Bosher & Sons, contractors. (£890 for the three Centres.)

Faringdon.—See above.

Hermitage.—Council School in reinforced brickwork.

Newbury.—Grammar School improvements.

Thatcham.—Church of England infants' school: improvements (total accommodation for 96).

Twyford.—Schools enlargement at Polehampton (total accommodation for 346 children).

Wallingford.—See above.

Wantage.—School for 200 scholars.

Buckinghamshire.

Wooburn.—Elementary school.

Cheshire.

Ashton.—Secondary day school, off the Stalybridge Road.

Macclesfield.—Technical School, Park Green: new cookery centre, industrial schoolrooms, engine-house, &c. Mr. John Clayton, contractor (£3,675).

Wirral.—Workhouse extensions.

Cornwall.

Connor Downs.—Farm buildings on Rosewarne Estate. Mr. Sampson Hill (of Redruth), architect.

Penzance.—County School (£6,100).

Redruth.—Workmen's cottages at Harmony.

Truro.—County School (£3,000).

Derbyshire.

Borrowash.—Sunday School (£1,200 to £1,500).

Derby.—Hall and premises for the G.U.O.O.F. Investment Association. Messrs. Macpherson & Richardson, architects.

Devon.

Stonehouse.—Mortuary for Workhouse Infirmary.

Dorset.

Motcombe.—Working Men's Club.

Swanage.—Parish Church enlargement.

Durham.

Pallion.—Primitive Methodist Church.

Essex.

Broomfield.—School teacher's house.

Buckhurst Hill.—Boys' and Infants' Schools: alterations. Messrs. C. S. Foster & Sons, contractors (£568).

Chelmsford.—Thirty-eight workmen's houses.

Cold Norton.—School, Chelmsford and St. Stephen's Roads site.

Dunmow.—Council School.

Grays.—Infants' School, Bridge Road. Messrs. Brown Brothers, contractors (£4,764).

Hadleigh.—School.

Leigh.—St. Clement's Church: additions and alterations. Mr. W. D. Caröe, F.R.I.B.A., architect.

Two houses, a shop and three lock-up shops, Elm Road.

Messing.—Council School.

Romford.—School, London Road. Mr. G. Brown (of Grays), contractor (£4,915).

Southend-on-Sea.—Girls' Secondary School.

West Thurrock.—Infants' School.

Westcliff-on-Sea.—Lindisfarne College: sea-water swimming bath.

Gloucestershire.

Chipping Sodbury.—Grammar School: additions and alterations. Mr. R. S. Phillips (of Gloucester), architect.

Hampshire.

Petersfield.—Infirmary: two new wards. Mr. H. T. Keates, architect.

Hertfordshire.

Hitchin.—Co-operative bacon factory.

Kent.

Ashford.—Technical Institute.

Bromley.—House, Coniston Road.

Four houses, Herbert Road.

Chatham.—Girls' County School.

Hempstead.—Church.

Herne Bay.—Concert hall and open-air theatre (£5,350). Mr. F. W. J. Palmer, council surveyor.

Isle of Grain.—School for 100 children.

Iwade.—Elementary School.

Platt.—School for 80 infants.

Sutton Valence.—School.

Tenterden.—School.

Tonbridge.—County School for girls, Sussex Road.

Lancashire.

Liverpool.—Council School for 650 children at Barlow's Lane, Fazakerley.

Prestwich.—Lunatic Asylum: new infirmary for females. Mr. T. Chadwick, A.R.I.B.A. (of Manchester), architect.

Leicestershire.

Blaby.—Workhouse additions and alterations (£1,650). Mr. W. M. Cowdell, F.R.I.B.A., architect.

Leicester.—St. Barnabas Church: Mission Institute (£300).

Lincolnshire.

Barton-on-Humber.—School.

Habrough and Immingham.—School alterations (£200).

Immingham.—Police Station (£4,000).

(See also above.)

Potterhanworth.—Working men's houses.

Scunthorpe.—Isolation Hospital for the District School (£14,850).

Middlesex.

Enfield.—Sunday Schools.

Monmouthshire.

Abercarn. — Ninety-eight workmen's houses (about £16,000).

Northamptonshire.

Brixworth.—(Supplementary to October 20) Forty houses.

Oxfordshire.

Burford.—Grammar School extension.

Oxford.—Radcliffe Infirmary (£20,000).

St. Frideswide's School (new), Ferry Hincksey Road.

Thame.—Lord Williams' Grammar School enlargement.

Somerset.

Taunton.—St. Mary's Church: Askwith Memorial Chapel (£1,000).

Yatton.—House.

STAFFORDSHIRE.

Stoke-upon-Trent.—Union and Relief Offices, High Street: alterations and repairs.

SURREY.

Guildford.—Secondary School for girls (accommodation for 200). £1,000.

SUSSEX.

Eastbourne.—(Supplementary to October 13) Church of St. Andrew's, Norway. Mr. W. H. Murray, architect.

Malvern.—Church of England School, Mill Lane: infants' department for 120 children, &c. (£1,000).

Tividale.—St. Michael's Parish Hall.

YORKSHIRE.

Airton.—School.

Brighouse.—Villa at Bowling Alley, Rastrick. Messrs. Sharp & Walker, architects.

Ecclesall Bierlow.—Council School, Western Road: additions for 450 children.

Guisborough.—Board of Guardians' Children's Homes.

Sharlston.—Public Elementary School, Hell Lane.

Whitby.—Custom House Hotel, Grape Lane: rebuilding.

WALES.

Cardiff.—Theatre Royal rebuilding. Mr. Bertie Crewe (of London), architect.

Denbigh.—Infirmary: mortuary chapel and out-offices.

Maesteg.—Council School, Derilwyn (for 1,124 scholars).

Ponthenry.—School (£2,800).

Ruthin.—Technical Institute.

Swansea.—Intermediate and Technical Schools.

Wrexham.—Church, Poyser Street.

SCOTLAND.

Dalmarnock.—Congregational Church: the George Gladstone Memorial Halls (£1,500). Messrs. J. C. M'Kellar, Davis & Gunn, architects.

Darnley.—Smallpox Hospital.

Dornie.—Social Institute.

Edinburgh.—Lady Glenorchy's Parish: new church (£8,250).

Royal Scottish Museum: new administrative block, storage, &c. (£5,000).

Villa, West Barnton Terrace.

Glasgow.—Anchor Chemical Works, Garngad Road: additions.

Engineering Works, Dobbie's Loan: additions. Mr. W. M. Bergius, engineer.

Sawmill and Offices, West Scotland Street, Kinning Park. Messrs. Anderson & Henderson, Ltd., builders.

Buildings, 15-17 Stanley Street.

Six terrace houses, Kinmount Avenue, Mount Florida. Mr. R. Henderson, architect.

Grangemouth.—Burgh stables, &c. (£1,000). Mr. D. A. Donald, Burgh Engineer.

Troon.—Double villa, Harbour Drive and Cessnock Road site. Messrs. M. Muir & Co., builders (£1,700).

The Ailsa Shipbuilding Co., Ltd., Engineering Works, Harbour Road: extensions (£2,500).

IRELAND.

Callan.—Fifteen one-storey houses, Fair Green Lane; four one-storey houses, Quarry site; ten two-storey houses, opposite Union. Mr. G. P. McDonnell, C.E., surveyor.

PATENT SPECIFICATIONS PUBLISHED OCTOBER 26, 1911.

17093. Oct. 25, 1910.—O. J. Owen, The Granville, Church Street, Blaenau Festiniog, Merioneth. Improvements in the Utilisation of Slate Refuse, and Manufacture of Artificial Slates or Tiles therefrom.

22546. Sept. 29, 1910.—J. H. Hopkins, 38 Cooke Street, Old Trafford, Manchester, and A. M. Stansfield, 31 Broom Lane, Levenshulme, Manchester. Improvements in or relating to Carburetting Apparatus.

22595. Sept. 29, 1910.—Geo. Cooper, The British Prometheus Co., Ltd., Salop Street Works, Highgate, Birmingham. A portable apparatus for removing Dust by Suction.

22615. Sept. 29, 1910.—Drs. H. K. Hof and B. M. Rinck, of Wansleben am See, near Halle on the Saale, Saxony. Improvements in or Relating to the Treatment of Impure Products containing Oxide and Sulphate of Lead by means of Salts of Alkaline Earths.

22736. Oct. 1, 1910.—Andrew Stapley, 17 Sugar House Lane, Stratford, E. Improvements in Apparatus for Heating Pulverised Asphalte and like substances.

22873. Oct. 3, 1910.—C. R. Ford, 107 Muller Street, Bellevue, near Johannesburg, Transvaal. Improvements in Fanlight Openers and the like.

22891. Oct. 4, 1910. H. R. Prosser, of Woodstock, Poplar Road, King's Heath, Birmingham. Improvements in or relating to Gas Burners.

22892. Oct. 4, 1910.—Thomas Piggott & Co., Ltd., and T. P. Barker, Atlas Works, Western Road, Birmingham. Improvements in or relating to the Method of Jointing Steel Pipes, Tanks, or the like.

22906. Oct. 4, 1910.—E. M. Potter, 3 High Street, Thame, Oxon. Metal Hoseclip for Repairing Holes or Bursts in Hosepipes.

23039. Oct. 5, 1910.—G. N. Sperryn, 25 Wye Cliff Road, Handsworth, Birmingham, and S. R. Barrett, Valentine Road, King's Heath, Birmingham. Improvements in Pneumatic Control Devices for Gas and other Fluid Systems.

23089. Oct. 6, 1910.—John & A. F. R. Dobbie, of Waverley Works, 24 Elbe Street, Leith. Improvements in the Construction of Bolts.

23265. Oct. 7, 1910.—John Schwab, 274 Selkirk Avenue, Winnipeg. Improvements in and relating to Systems for Heating a Plurality of Boilers.

23288. Oct. 8, 1910.—J. S. Owens, 47 Victoria Street, S.W. An Improved Mixing Machine for Concrete, Mortar, Tar-macadam, and the like.

23346. Oct. 8, 1910.—Carl Laudi, 407 Grafenberger, Allee, Dussesdorf-Grafenberg, Germany. Improvements in or relating to an Automatic Grab.

23364. Oct. 8, 1910.—F. P. Hughes, Heathfield, Priory Lane, Blackheath, and P. R. Davison, 42 Cobham Street, Gravesend. Improvements in Transporters.

23754. Oct. 13, 1910.—C. L. Newland, Victoria Villa, Cavendish Road, Merton. Improvements in and relating to Flushing Cisterns.

23962. Oct. 17, 1910.—James Richardson, 127 Ormeau Road, Belfast. An Improved Fire Escape.

25003. Oct. 27, 1910.—Septimus Catchpole, 28 Masons Hill, Bromley. Improvements in and relating to Road Dust Collectors.

25333. Nov. 1, 1910.—Charles Ogden, 53 Trafford Road, Salford. Flexible Detachable Screw Joints.

25482. Nov. 2, 1910.—L. C. Krummel, Clinton, Middlesex, Conn., U.S.A. Improvements in and relating to Multiple Double Seamers for Cans and the like.

25511. Nov. 3, 1910.—Fawcett, Preston & Co., Ltd., 17 York Street, Liverpool, and W. C. Critchley, 68 Pard Road, North, Birkenhead. Improvements in or connected with Hydraulic Controlling Valves.

27110. Nov. 22, 1910.—Walter Blakeborough, Woodhouse Works, Brighouse, York, John Smith, Bradford Road, Brighouse, and J. Broadhead, Wellholme, Brighouse. Improvements in or appertaining to Reducing Valves.

27691. Nov. 28, 1910.—D. M. Bowyer-Smyth, 9 Dumfries Place, Cardiff. An Improved Safety Hook.

28299. Dec. 6, 1910.—R. A. Blakeborough, of Woodhouse Works, Brighouse, and Colonel John Vickers, Grooves Villa, Crowtrees Lane, Rastrick, Brighouse. Improvements in Revolving Sewage Distributors.

28353. Dec. 6, 1910. Jan. 6, 1911.—Prof. Dr. Robe Gans, 12 Parkstr., Pankow, near Berlin. Process for Clarifying Water and for Purifying it from Germs.

28763. Dec. 10, 1910.—L. D. Carroll, 38 Victoria Street, S.W. Improvements relating to the Manufacture of Carburetted Water Gas.

330. Jan. 5, 1911.—Martha Harrison, 12 Leopold Road, Ealing. Improvements in and connected with Gas Cooking Stoves.

1088. Jan. 16, 1911.—W. S. Duggan, 67 Great Britain Street, Dublin. Back Draught Preventing Chimney Pot and Ventilator.

1174. Jan. 17, 1911.—J. D. Prior, 197 Holliday Street, Birmingham. Improvements in and relating to Domestic Fire Grates.

1808. Jan. 24, 1911.—A. W. Mathys, 43 Chancery Lane, W.C. Improvements in and relating to Faucets.

4270. Feb. 20, 1911.—H. G. Geissinger, 203 Greenwich Street, New York. Improvements in and relating to Valve Control Mechanisms.

4284. Feb. 20, 1911.—C. M. March, 19 Bramhall Street, Portland, Maine, U.S. Improvements in or relating to Slide and Swinging Windows.

4895. Feb. 27, 1911.—Prof. Victor Henri, 82 rue Claude-Bernard, Paris, and Dr. Andre Helbronner, 49 rue St. Georges, Paris, and Max von Recklinghausen, 4 rue Auber, Paris. Improvements in Apparatus for Treating Liquids with Ultra Violet Rays.

4979. Feb. 28, 1911.—A. C. Sluyterman, 12 Javastraat, The Hague, Holland. Improvements in connection with Fire Extinguishing and Fumigating or Disinfecting Apparatus.

5261. March 2, 1911.—Convention application, March 3, 1910. Mrs. J. E. Robinson, Ruskin Manor, Denmark Hill. Improvements in or relating to Smoke Consuming Furnaces and Stoves.

6262. March 13, 1911.—Pierre Haerst, of 1409 Clark Street, Chicago, Cook, U.S.A. Improvements in Sweeping Machines.

8884. April 10, 1911.—Adolf Muller-Deutschmann, of Eltville-on-Rhine. Improvements in Glass Frames for Gardening Purposes.

9913. April 24, 1911.—Convention application, June 4, 1910. Franz Kanis, 27 Idastrasse, Griez, Reuss. Improvements in or relating to Folding Garden Furniture, such as Sofas, Benches, or the like.

11548. May 12, 1911.—Convention application, June 9, 1910. Ferdinand Schneider, Fulda, Germany. Improvements in Thermostats.

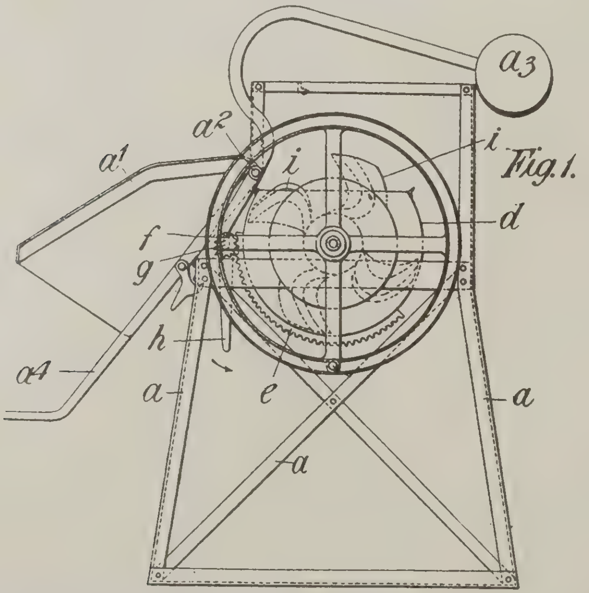
12562. May 24, 1911.—A. E. Towell, 10 Haywood Road, Bromley. Improvements in Flushing Cisterns.

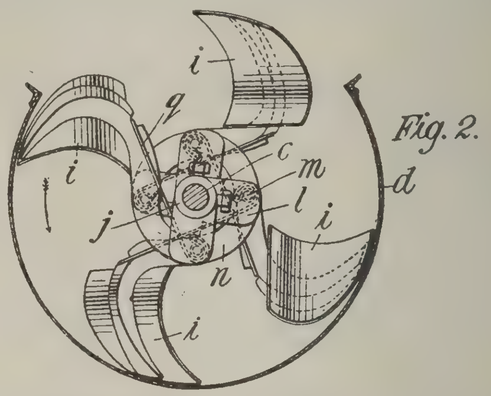
BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

No. 23288. October 8, 1910.—Improved Mixing-Machine for Concrete, Mortar, Tar-macadam, and the like. John S. Owens, 47 Victoria Street, S.W. This invention has for its object to provide an improved mixing-machine of the moving beater type, in which arms, or beaters, revolve in a normally fixed container or mixing vessel. One of the chief difficulties heretofore encountered in the practical operation of this type of machine when mixing hard granular materials has been the jamming of hard particles in the working parts of the apparatus, with a consequent increased consumption of power in driving and wear and tear of the machine. Fig. 1 is a side elevation of the mixing-machine. Fig. 2 is a view of the mixing drum, one side or wall being removed to show the arrangement and mounting of the blades or beaters therein. The machine frame is constructed of angle irons A rivetted together to form a support for bearings B, in which rotates a shaft C passing axially through the drum D, which is open at its upper part, and is supported by trunnions engaging in the shaft bearings in such manner that it may be inverted to discharge its contents when desired. For this purpose the drum D is provided with a segmental rack E, engaged by a pinion F, mounted on a spindle G, operated by the handle H, so that when this latter is turned in the direction of the arrow fig. 1, the drum D will be inverted, so shooting its contents into a receptacle placed beneath it. In order that the drum may be prevented from swinging during the mixing operation a stop-pin is arranged to slide freely in holes formed in the lugs of the bracket supporting the pinion F, so that it may be inserted between the teeth of the pinion to prevent its movement. The mixing blades or beaters I are mounted upon the shaft C, which is surrounded by a sleeve J, rigidly secured to the shaft by means of set screws. The sleeve J carries projecting lugs L, two for each blade I, and between each pair of such lugs is pivotted at M an arm N, to the opposite end of which the blade I is secured. The arm N is formed with an abutment or projection engaging with a stop formed by a web cast between each pair of lugs L, the parts being so adjusted that in the normal position of the arm N, as shown in fig. 2, the point of the blade I will be just out of contact with the interior surface of the drum D. On the pivot M is a spring Q bearing upon the arm N, thus holding it in operative position nearly in contact with the drum D during part of their revolution. The steel blades I are curved to deflect all material towards the centre of the drum during the mixing operation, and also to scrape the whole internal surface of the drum clear when this latter is inverted. Thus each of the mixing blades is resiliently suspended from the operating shaft at a point in advance of the point of the blade in the direction of rotation, so that any excessive pressure upon the point of a blade due to jamming of hard particles between it and the drum will cause the point of the blade to move on the arc of a circle struck from the point of suspension of the blade, which, being eccentric to the shaft and in advance of the point of the blade, will cause the blade to be lifted clear of the obstacle. The curvature given to the mixing blades will allow them to enter and pass through any material in the drum at an oblique angle, thus contributing to the more efficient mixing of the material with a minimum expenditure of driving power. The gear employed for rotating the shaft C is of the enclosed epicyclic type. To readily feed the material into the drum D, a tilting hopper A1 is pivoted at A2 upon the frame A, having counterweights A3 and a handle A4 for operating the hopper by hand. October 11, 1911.





No. 11548. Date claimed under International Convention, June 9, 1910. Date of application in the United Kingdom, May 12, 1911.—Improvements in Thermostats. Ferdinand Schneider, of Fulda, Germany.—This invention relates to electric thermostats with mercury thermometers adapted to close the circuit of an electric device that actuates a ventilating valve, and has for its object an improved means for preventing sparking at the mercury contact when the circuit is opened. In this invention the thermometer is first short-circuited, by means of a secondary contact circuited parallel to the thermometer, which is positively closed, and is opened after the mercury contact has been separated. In fig. 1, A is the bed-plate, which has a segmental opening at B, in the centre of which the bearing-pin E is inserted. On the bearing-pin E a disc C, with a segmental hole D, is rotatively mounted, this disc being also notched at G, and provided with a toothed rim F. The teeth of the rim F engage with the worm H, which, by means of its spindle I, is seated between the bearing blocks L K fixed to the bed-plate A. On the shaft I is the pulley M, which is connected through the cord N with the pulley O of an electro motor P fixed on the bed-plate. On the bed-plate A the contact springs P Q are fixed, and are insulated from one another by means of the insulating piece S. The battery T that stands on the bed-plate is coupled up on the one hand with the electromotor, and on the other with the contact spring R through the conductor W. From the contact spring Q the conductor V runs to the second terminal of the electromotor P. The contact thermometer X U is connected in parallel circuit with the contact spring R Q through the secondary conductors V W. The action of the apparatus is as follows: The bed-plate A is utilised for shutting off a space or room that is to be heated, the temperature of which, for example, is to be kept below a certain degree. The mercury thermometer U X is arranged in this space or room. When the column of mercury comes in contact with the contact pin X the circuit X U W T P V is closed. Thereupon the electromotor acts, transmits its rotary motion through the gear O N M to the shaft I, which actuates the wheel F in the direction from left to right by means of the screw H. The disc C is thus rotated, whereby the bent contact spring Q is pressed out of the notch G, and in conjunction with the second contact spring R closes the circuit Q R W T P V, and the thermometer is short circuited. With the continuing movement of the disc C the two parts B D (fig. 2) come one above the other, whereby the warm air in the enclosed space or room is released. The column of mercury then drops and separates from the contact pin X without any spark being formed, because the secondary circuit V X U W has been meanwhile deprived of current through the contact closing device R Q. The disc C continues rotating until the contact spring Q, by dropping into the notch G, again breaks the circuit, whereupon the space to be maintained at a given temperature is again closed. October 11, 1911.

Fig.1.

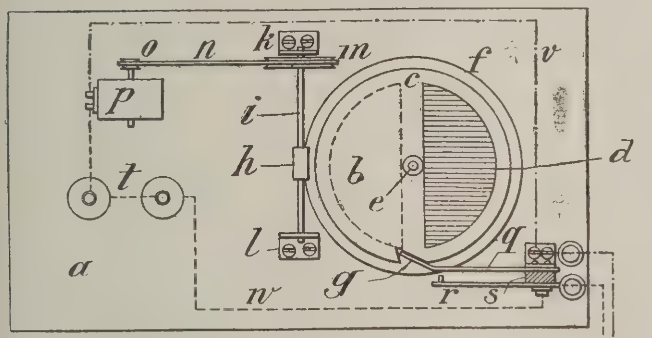
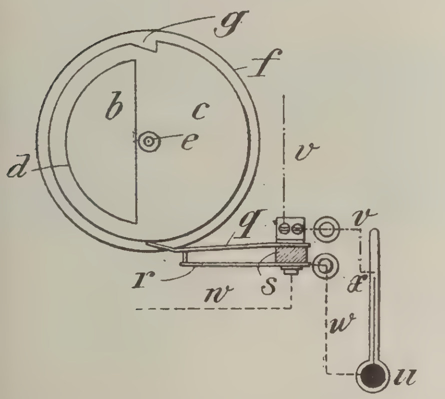


Fig.2.



TRADE NOTES.

MR. L. MARSHALL, late of Lumby, Son & Wood, has been appointed manager of the firm of J. Ashton Riley & Co., of Huddersfield.

MESSRS. KEMP, DURANT & Co., LTD., manufacturers of fine stuff for mortar, and dealers in mortar, hardcore, sand, ballast, &c., have removed their office from 7 South Wharf, Paddington, to their depôt, G.N. Railway Depôt, Frederick Street, Caledonian Road, London, N., where all communications should be addressed.

WE have received from Messrs. Young & Marten, of Stratford, their catalogue of "The Hue" adaptable fire. The fireplace, known under the registered title of "The Hue," is a barless stove, with the fire low down on the hearth. The special features claimed are adaptability at very small cost to existing fireplaces, cleanliness, and minimum of attention.

MESSRS. OETZMANN & Co., LTD., are holding a great autumn sale at their showrooms and galleries at 67-79 Hampstead Road, W. Goods to a total value of some £60,000 are offered to the public at "bargain prices" to effect speedy clearances.

THE Building Trades Exhibition, organised by Mr. Walter Cawood, of the City Hall, Deansgate, Manchester, we are informed, promises to be a bigger success than ever. It is supported by the whole of the trade organisations in the North of England, prominent amongst whom are the Manchester, Salford, and District Building Trades Employers' Association, Manchester and District Branch National Registration of Plumbers, and the Institute of Plumbers, Ltd., together with the leading borough architects, sanitary inspectors, &c. The list of exhibitors is far ahead of what it usually is at this period of the year. The Blue Hungarian Band has been engaged at the special request of the exhibitors at the last Exhibition, and everything points to a record success.

THE Carron Company have issued a small illustrated pamphlet dealing with their "Abbey" series of gas fires. This series comprises eight distinct dignified designs, which, with their different sizes, afford a selection of twenty-one varieties, supplied in many pleasing and artistic finishes. All parts of the "Abbey" series are interchangeable, and gas connection can be made either right or left hand, as desired. Several of the patterns can be fitted (at small extra cost) with boiling burner on top, which greatly increases their utility. These fires are also fitted with specially-designed "Carron" pillar fuel, affording the greatest possible radiation, besides considerably enhancing the appearance of the fire.

MESSRS. FENLON & SON, "Tudor" and "Calda" Works, Tudor Street, E.C., have sent us an abridged list of their hot-water apparatus. The firm have illustrated several apparatus, including the "Lorne" gas boiler; the "Ephaness" hot-water apparatus; the "New Era" and "Unique" radiators; the "Triad" gas-circulating boiler; the "Fleet," "Tudor," "Calda" and "C.C. Fleet" geysers, as well as bath-room fittings. A special feature is made of the safety of Messrs. Fenlon's appliances. In price they are as low as is possible consistent with good workmanship.

SIR GEORGE FRAMPTON, R.A., was on Tuesday elected President of the Royal Society of British Sculptors.

MR. T. D. RHIND, architect, Edinburgh, has prepared plans in connection with a proposed nursing home in Edinburgh for persons of small means. A block of three large houses in Chalmers Street has been purchased, and these will be altered where necessary for their new purpose.

MR. W. S. SKINNER, architect, Bristol, has prepared plans for the proposed extension of the Winsley Sanatorium, at a cost of £9,000.

MESSRS. HOMER & LUCAS, architects, 35 Bucklersbury, E.C., have prepared a scheme for pulling down Nos. 7, 8, and 9 Little Turnstile, Holborn, W.C., and the erection on the site of shops with offices over. The contract has been let to Messrs. Spiers & Sons, St. John's Wood, N.W.

THE Local Government Board have sanctioned an application by the St. Helens Education Authority for permission to borrow £4,666 for the erection of an infants' department to the Thatto Heath Council School, and £234 for the furnishing of the same.

INTIMATION has been received in Dundee of the death at Montreal of Mr. H. E. East, F.R.I.B.A. Mr. East received his early training in the office of Mr. T. M. Cappon, architect, Dundee. Afterwards he went to London. There he was in the service of the London County Council. In a competition in connection with a housing scheme in Bermondsey the plans of Mr. East were successful. The housing scheme involved an expenditure of between £40,000 and £50,000. The deceased was for a time in practice in London, but early this year he went to Canada. He latterly occupied an important post in the service of the Canadian Pacific Railway Company. He was thirty-four years of age, and unmarried.

THE Farnham Rural District Council have approved of plans and estimates amounting to £47,000 for sewerage of Ash, Farnham Rural, and Seale, or £18,000 less than the amount of the original scheme. The amount was made up as follows:—Main and branch sewers, manholes, &c., £25,124; sewage disposal and outfall works, £11,763; easements and compensation, £3,500; engineering, £2,000; legal, £300; clerk of works, £400; contingencies, £3,912. The scheme has been prepared by Messrs. Willcox & Raikes.

THE Great Central Railway IS The Line for Winter Travel.

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For particulars of Train Service, Special Travel facilities and other information apply at any Great Central Station or Agency, Dean and Dawson's Offices, or send postcard to Publicity Dept., 16 Marylebone Road, London, N.W.

SAM FAY, General Manager.

"THE ARCHITECT"
Students' Sketching and Measuring Club

With the view of encouraging amongst architectural students the sketching and measuring of old work, the Proprietors of "The Architect" have decided to establish a Students' Sketching and Measuring Club in connection with this journal.

A separate subject will be set and a money prize given each month, and in July a Travelling Studentship will be awarded to the student who has submitted the best aggregate of work during the year.

SUBJECT FOR NOVEMBER, 1911.

A measured drawing or drawings of a chimneypiece of eighteenth century date, either British or Continental work.

Conditions.

1. There is no restriction on the size or number of the drawings.
2. The subject drawn need not necessarily be in its original position, but may be in a museum or elsewhere.
3. The drawing is to be accompanied by a short historical and architectural description.
4. A prize of Two Guineas will be given to the author of the drawing considered best by the Editor, or at his discretion the amount may be divided between the contributors. All drawings will be returned to their authors.
5. The drawing to which the prize is awarded will be published in *The Architect*, but the Editor reserves the right of publication without payment of any other drawing sent in.
6. Drawings are to be delivered at the office of *The Architect*, addressed to the Editor, and marked outside "Sketching and Measuring Club," on or before Thursday, November 30, 1911
7. Each drawing is to be accompanied by a coupon (which will be found below) properly filled up.
8. A student may send in more than one drawing.
9. A criticism on the drawings sent in will be published in *The Architect*, and reference will be made to each under the name of the author or a *nom de plume*. (*See coupon.*)
10. Every reasonable care will be taken of drawings sent in, but the Proprietors of *The Architect* will not be responsible for any injury or loss that may occur.
11. The decision of the Editor of *The Architect* shall be final and without appeal in all matters connected with the Students' Sketching and Measuring Club.
12. The winners of the Travelling Studentships, 1910 and 1911, will be *hors concours* for future competitions of the Club.

SUBJECT FOR DECEMBER, 1911.

A freehand drawing executed in monotone, brush-work or crayon, of a piece of mediæval carved ornament, either British or Continental.

SUBJECT FOR JANUARY, 1912.

A measured drawing or drawings of an internal doorway of eighteenth century date, either British or Continental.

The conditions relating to the subjects for December and January will be published during those months.

Conditions of the Travelling Studentship.

1. The Travelling Studentship will be awarded in July 1912 to the author of the best work sent in during the months of July 1911 to June 1912 (inclusive). In the case of students who send in more than one drawing or set of drawings in any one month, the Editor will in making his award select one only from the work of each month to count in the competition for the Studentship.
2. The value of the Studentship will be Ten Pounds, and the holder will be required to make a sketching tour of a fortnight's duration in a district to be approved by the Editor.
3. The sum of Ten Pounds will be paid in two instalments, half before the student starts on his tour, and half when after his return he shall have submitted to the Editor satisfactory work executed during the tour.
4. The proprietors of *The Architect* shall have the sole right of publication of the whole or any part of the work executed by the student during his tour.
5. The decision of the Editor of *The Architect* shall be final and without appeal in all matters connected with the Travelling Studentship.

"THE ARCHITECT" SKETCHING AND MEASURING CLUB.

COUPON TO BE SENT IN WITH DRAWING.

To the Editor of "The Architect."

I herewith submit for November, 1911, the drawing described below, and I declare that the same has been entirely executed by myself. I hereby agree to the conditions published in "The Architect," both as regards the subject for this month and as regards the Travelling Studentship.

Name ....
Nom de plume (if desired) ....
Address ....
....
Date ....
Description of Drawing ....
....
....
....

THE
Architect and Contract Reporter.

FRIDAY, NOVEMBER 10, 1911.

Published weekly, subscription 19s. per annum for Great Britain, and for Colonial and Foreign subscriptions £1 6s. 6d. All business communications to the Managing Director,

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The Birmingham Offices are at 102 Colmore Row.

**** Entered in the United States of America as second-class matter.*

AGENTS FOR AMERICA.

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AGENTS FOR CANADA.

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Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2* p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Bolton.—Jan. 6.—The Lancashire and Cheshire Miners' Federation invite architects in independent practice within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1s. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton. N.B.—The time for sending in applications and designs has been extended from Dec. 1 to Jan. 6.

Bristol.—Messrs. H. J. Packer & Co., Ltd., chocolate manufacturers, invite designs for a pavilion proposed to be erected on the recreation grounds. A premium of £10 will be awarded to the architect whose design is accepted. Apply to Messrs. H. J. Packer & Co., Ltd., Greenbank, Bristol.

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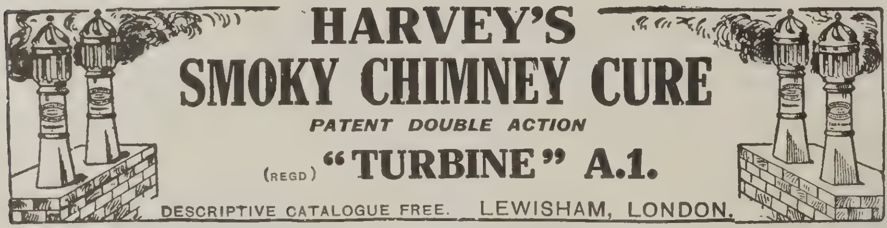

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Hastings.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1*s.* deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.—N.B. The time for sending in applications and designs has been extended until December 30.

Rochdale.—Dec. 22.—The Board of Management of the Infirmary invite architects practising in Rochdale prior to January 1, 1911, to submit plans, designs, and estimates for extending the present buildings. Conditions of competition, with other information, together with instructions to architects, can be obtained on application to the secretary. An assessor has been appointed by the committee. Mr. T. Elvyn Kershaw, secretary, Secretary's Office, the Infirmary, Rochdale.

Sofia (Bulgaria).—Dec. 15.—H.M. Minister at Sofia reports that the "Commission Permanente de l'arrondissement de Sofia" invite the submission of designs for a municipal building which it is proposed to erect at that place. Four prizes to the value of 7,000 fr. (£280), 3,000 fr. (£120), 2,000 fr. (£80), and 1,000 fr. (£40) respectively will be awarded. Architects desirous of competing must submit their designs at Sofia by Dec. 15. Copies of the programme, &c., may be obtained on application to the "Commission," as above. A copy of the programme, together with a drawing, may be seen at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

Stafford.—The Corporation invite designs for a public library. A professional assessor has been appointed. Send £1 deposit, which will be returned on receipt of a bona-fide design, or the return of the conditions, &c., within one month of receipt. Mr. William Plant, A.M.Inst.C.E., borough engineer, Borough Hall, Stafford.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Wales.—Nov. 30.—The Cardiff Education Committee invite designs and estimates for a technical institute proposed to be erected in Cathays Park. Mr. J. S. Gibson, architect, will act as assessor. Full particulars will be sent to architects on application, accompanied by a deposit of £2 2*s.*, which will be returned to all architects submitting bona-fide designs or who return the conditions within six weeks. Mr. J. Jackson, director of education, Education Offices, City Hall, Cardiff.

CONTRACTS OPEN.

Accrington.—For erection of new church of St. Andrew's. Forward names to Messrs. Grimshaw & Cunliffe, architects, Birch Street, Accrington.

Aintree (Lancs).—Nov. 15.—For the roofing of platform and construction of station buildings for the Lancashire and Yorkshire Railway Co. The Engineer's Office, Hunt's Bank, Manchester.

Bexhill.—Nov. 23.—For erection of infants' school. Mr. H. P. Burke Downing, F.R.I.B.A., architect, 12 Little College Street, Westminster, S.W.) Send applications and £2 2*s.* deposit by Nov. 4 to Mr. Arthur B. Lawson, secretary, Education Offices, Bexhill.

Birmingham.—Dec. 4.—For alterations and additions to the electric sub-station, Dale End. Send names and £2 2*s.* deposit by Nov. 20 to Mr. A. Rowse, quantity surveyor, King's Court, 117 Colmore Row, Birmingham. Messrs. E. Harper, F.R.I.B.A., & Bro., architects, Ruskin Chambers, 91 Corporation Street, Birmingham.

Birmingham.—Dec. 4.—For erection of an electric substation in War Lane, Harborne. Send names and £2 2*s.* deposit by Nov. 20 to Mr. A. Rowse, quantity surveyor, King's Court, 117 Colmore Row, Birmingham. Messrs. A. Harrison & Cox, architects, Council Chambers, 109 Colmore Row, Birmingham.

Chipping Sodbury.—Nov. 18.—For alterations and additions to the Grammar School. Deposit £1 1*s.* Mr. R. S. Phillips, architect, Shire Hall, Gloucester.

Cumberland.—Nov. 25.—For the whole of the work required in connection with improvements, &c., to Cummersdale and Stoneraise Council schools, for the Cumberland Education Committee. The Education Committee's Clerk of Works, 13 Earl Street, Carlisle.

Edinburgh.—Dec. 7.—The Commissioners of H.M. Works and Public Buildings are prepared to receive tenders for the alteration and extension of the Central Telephone Exchange, Rose Street, Edinburgh. Tenders are required for the whole work, and not for separate trades. Deposit £1 1*s.* H.M. Office of Works, Edinburgh.

Folkestone.—Nov. 16.—For the work in connection with erection of the Harvey Grammar School for 150 boys in Cheriton Road. (Mr. E. Finn, architect, 19 Watling Street, Canterbury.) Send names and £1 1*s.* deposit at once to Mr. H. J. Moody, quantity surveyor, 5 Cheriton Place, Folkestone.

Harrogate.—For alterations and additions to the Cairn Hydropathic. Messrs. Bland & Brown, architects, North Park Road, Harrogate.

Hindley.—Nov. 14.—For hospital extensions, Sandy Lane, for the Urban District Council. Mr. O. P. Abbott, surveyor, Council Offices. Tenders to be sent to Mr. Thomas Robey, clerk, Council Offices, Hindley.

Huddersfield.—Nov. 15.—For proposed yeomanry headquarters, Fitzwilliam Street, for the West Riding of Yorkshire County Association. Mr. W. Cooper, F.R.I.B.A., architect, 4 Kirkgate Buildings, Huddersfield.

Hull.—Nov. 14.—For erection of a sports pavilion on the school playing field at the rear of the proposed training college, Cottingham Road. The Education Offices, Albion Street, Hull.

London.—Nov. 13.—For erection of new offices for the Board of Agriculture and Fisheries. Deposit £3 3*s.* Mr. H. A. Collins, A.R.I.B.A., at H.M. Office of Works, &c., Storey's Gate, S.W.

London.—Nov. 21.—For the renewal of a portion of the steel superstructure of the Smithfield Goods Station, for the Great Western Railway. The office of the Engineer, Paddington Station, London, W.

Montacute.—Nov. 16.—For erection of twelve houses for the working classes in the parish of Montacute, Somerset, together with certain drainage and other work, for the Yeovil Rural District Council. Deposit £1 1*s.* Messrs. Petter & Warren, architects, Church Street, Yeovil.

Nelson.—Nov. 25.—For the erection of central sanitary conveniences in Vine Street: (1) Excavator, drainer, mason and bricklayer's work; (2) carpenter and joiner's work; (3) plumber and glazier's work; (4) painter's work. Mr. W. Shackleton, A.M.I.C.E., borough engineer and surveyor, Town Hall, Nelson.

Nelson (Lancs.).—Nov. 25.—For the following works, for the Parks Department:—(1) Foundations to bandstand and construction of walks at Victoria Park; (2) new bowling green, Carr Road; (3) bowling greens, &c., Thomas Street; (4) bowl house at Thomas Street bowling green. Mr. W. Shackleton, A.M.I.C.E., borough engineer and surveyor, Nelson.

Portland.—Nov. 18.—For reslating the roof, laying a cement concrete floor, and other work, at the R.G.A. Drill Hall, Easton Road. Mr. F. T. Maltby, A.M.I.C.E., architect and surveyor, Dorchester.

Prestwich (Lancs).—Nov. 17.—For erection of an infirmary for female patients at the County Lunatic Asylum. Deposit £2 2*s.* Mr. T. Chadwick, A.R.I.B.A., architect, 16 Princess Street, Manchester.

Radcliffe.—Nov. 30.—For alterations and additions (including new court-house and cells) to the county police station at Radcliffe, near Bury. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Reading.—Nov. 17.—For the construction of a concrete bathing place, together with campsheathing, footbridges, buildings, galvanised iron screen fences, and other works in connection therewith, at Coley, Reading. Mr. J. Bowen, A.M.I.C.E., borough engineer and surveyor, Town Hall, Reading.

Salford.—Nov. 15.—For new buildings, boiler, engine, and machinery at the Agecroft depôt for slab-making plant, for the Corporation. Building Surveyor, Town Hall, Salford, and Superintendent, Lighting, &c., Department, Wilburn Street, Salford.

Scotland.—Nov. 14.—For the various works in connection with erection of proposed new school at Whinny Brae, Broughty Ferry. Mr. J. H. Langlands, architect, 31 Murray Gate, Dundee.

Shipton Bellinger.—Nov. 14.—For erection of a Council school for 99 children and teacher's house. Deposit £2 2*s*. Mr. A. L. Roberts, architect to the Education Committee, The Castle, Winchester.

Shoreham.—Nov. 14.—For alterations and additions to the Grammar School. Deposit £2 2*s*. Mr. C. Latham, architect and surveyor, Dolphin Chambers, Shoreham-by-Sea, Sussex.

Tidworth.—Nov. 27.—The Secretary of State for War invites tenders for the erection of thirty-two civilians' quarters (in flats) in two blocks at Tidworth, Hants, in the Southern Command. Send names and 10*s*. deposit by November 17 to the Director of Barrack Construction, 80 Pall Mall, London, S.W.

Tredington.—Dec. 2.—For erection of an isolation hospital with outbuildings and for alterations and additions to the existing hospital at Tredington, near Tewkesbury. Deposit £1 1*s*. Mr. J. Villar, F.S.I., M.S.A., architect, 5 Essex Place, Cheltenham.

Trowbridge.—Nov. 14.—For erection of a Council school at Trowbridge, Wilts. Deposit £5. Mr. J. G. Powell, county surveyor, Trowbridge.

Wales.—For erection of 120 or more houses at Clydach-on-Tawe in the Swansea Valley. Send names to Mr. W. A. James, Estate Office, Clydach-on-Tawe.

Wales.—Nov. 13.—For erection of new Derllwyn school at Maesteg, Glam., which will provide accommodation for 1,124 scholars. The Maesteg Police Station and at the Glamorgan County Council Offices, Westgate Street, Cardiff.

Wales.—Nov. 14.—For alterations and additions to the surgery, Troedyrhiw, to be utilised as a police station, for the Merthyr Tydfil Corporation. The Borough Surveyor, Town Hall, Merthyr Tydfil.

Wales.—Nov. 14.—For alterations to the Danygraig Arms, Treforest, for the Rhondda Valley Breweries Co., Ltd. Deposit £1 1*s*. Mr. T. F. T. Jarvis, F.C.I.S., The Brewery, Pontypridd.

Wales.—Nov. 14.—For extension of Haverfordwest Post Office, for the Commissioners of H.M. Works and Public Buildings. The Postmaster at Haverfordwest and H.M. Office of Works, &c., Storey's Gate, S.W.

Wales.—Nov. 15.—For the erection of a sea wall at Cwmyreglwys, Dinas, 90 feet long, 8 feet high, and 4 feet tapering to 3 feet wide, for the St. Dogmaels Rural District Council. Mr. D. Davies, clerk, Quay Street, Cardigan, or Mr. W. R. Davies, road surveyor, Cambria Terrace, Newport, Pembroke.

Wales.—Nov. 16.—For the provision and erection of an automatic electric lift at the workhouse infirmary, Stow Hill, Newport (Mon.). Mr. H. J. Griggs, A.R.I.B.A., architect, Metropolitan Bank Chambers, Newport, Mon.

Wales.—Nov. 18.—For erection of new boiler house at the Cardiff workhouse. Mr. E. Seward, F.R.I.B.A., architect, Queen's Chambers, Cardiff.

Wales.—Nov. 21.—For erection of new girls' school at Troedyrhiw, Merthyr Tydfil. The Depupty-Surveyor, Town Hall, Merthyr Tydfil.

Walsall Wood.—Nov. 11.—For the enlargement by about 150 places of Walsall Wood Council School, in the urban district of Brownhills, Staffordshire. Send names and £1 1*s*. deposit by Nov. 11 to Mr. G. Balfour, director of education, County Education Offices, Stafford.

Watford.—Nov. 23.—For alterations and additions to the existing grammar school for boys to adapt same for a higher elementary County Council school. Deposit £2 2*s*. Mr. U. A. Smith, county surveyor, Hatfield.

The Surrey Education Committee have decided to provide a new school in the district of Hythe, Egham, for 600 scholars, capable of future extension to 1,000. The plans are also to be prepared for a County School for Girls (accommodation 200) to be erected in Farnham Road, Guildford, and a new school at St. John's, Woking (accommodation 200).

At Ayr Dean of Guild Court last week the Burgh Surveyor reported that the estimated cost of buildings for which plans were passed during the year was £54,368, an increase of £1,795 as compared with last year and of £20,803 as compared with the total of two years ago. Of this year's total only £5,500 applied to dwelling-houses, £36,821 applied to business premises, and £12,047 to alterations and minor warrants.

TENDERS.

ATTLEBOROUGH.

For erection of the infirmary, consisting of main building, Board-room block, porter's lodge, and stables, &c., for the Wayland Board of Guardians.

F. & S. Dickerson	£15,521	11	3
Kenney	15,435	0	0
Carter & Wright	15,340	5	2
Gutteridge & Sons	15,166	16	5
Roper	14,989	0	0
Blyth	14,961	8	8
Hawes & Son	14,765	0	0
Youngs & Son	14,695	0	0
Bennett	14,693	4	11
Kidman Bros.	14,660	13	0
Carter	14,500	10	4
Hannant	14,487	0	0
Gill & Son	14,464	0	0
Bell & Sons	14,311	7	9
Smith	14,210	0	0
Shanks, Chatteris (*accepted*)	14,036	10	0

BRITON FERRY.

For construction of a brick and concrete sewer. Mr. H. A. Clarke, engineer, Briton Ferry, Glam.

Hill	£2,500	0	0
Underwood & Bros.	2,354	4	10
Morgan	2,326	16	9
Jones	2,314	11	9
Thompson	2,193	7	6
Barnes, Chaplin & Co.	2,169	19	0
Johnson Bros.	2,169	17	3
Walker	2,147	11	6
Collins & Co.	2,128	2	6
Evans & Bros.	1,956	17	8
W. & J. R. Watson, Ltd., Bridgend (*accepted*)	1,836	2	6
Smith	1,835	10	0
Engineer's estimate	2,269	0	0

DUNDRUM.

For the construction of an outfall sewer for the Rathdown Rural District Council. Mr. P. H. McCarthy, B.E., M.I.C.E.I., engineer, Dublin.

J. & T. Binns	£12,882	10	9
Clark	11,697	0	6
Thompson Bros.	11,592	7	0
H. & T. Martin	11,170	0	0
McKee & McNally	10,932	14	4
Graham	10,931	12	0
Martin & Co.	10,768	12	8
Grainger Bros., Hollywood (*provisionally accepted*)	10,178	11	10
Engineer's estimate	11,588	15	10

LONDON.

For the reinstatement on other land of buildings at Cook's Ground, Chelsea, for the London County Council.

F. & H. F. Higgs	£536	0	0
Triggs & Co.	511	0	0
Lapthorne & Co.	497	0	0
Smith & Sons	444	0	0
Groves, Greenwich (*accepted*)	369	0	0

For provision of plant required for the new London County Council sub-station to be erected at Vauxhall.

(1) One 20-ton overhead travelling hand-crane.

John Smith (Keighley), Ltd. (*recommended*)	£259	10	0

(2) High-tension electric cables.

Siemens Bros. & Co., Ltd. (*recommended*)	£9,761	19	0

(3) Low-tension electric cables.

Western Electric Co., Ltd. (*recommended*)	£15,161	19	4

(4) Rotary converters.

Dick, Kerr & Co., Ltd. (*recommended*)	£5,787	0	0

For proposed motor garage, waiting and dressing rooms, and manufacturing depôt at Halliday Street, W.C., for the Motor Supplies Co. Mr. George Carter, architect, 513 Holloway Road, N.

Substructure and foundations.

King & Sons	£2,643	0	0
Smith & Sons	2,594	0	0
Woodward & Co.	2,547	0	0
Lockwood & Saunders	2,483	0	0
Grimvale & Yardley	2,324	0	0
Architect's estimate	2,450	0	0

LONDON—*continued.*

For enlarging the L.C.C. Camberwell School of Arts and Crafts.

Leslie & Co.	£20,599	0	0
Wall, Ltd.	20,228	0	0
Holloway Bros.	19,231	0	0
Smith & Sons	19,151	0	0
Higgs & Hill	19,070	0	0
Lawrance & Son	18,694	0	0
J. & C. Bowyer	17,972	0	0
E. Lawrance & Sons, 15 and 16 Wharf Road, City Road *	17,925	0	0
Kirk & Randall	17,915	0	0

* Recommended for acceptance after reduction to £17,199.

For the enlargement of the Buckingham Terrace school, Kensington.

King & Son	£7,509	0	0
Soole & Son	7,461	0	0
Rice & Son	7,262	0	0
J. & M. Patrick	6,998	0	0
Godson & Sons	6,873	0	0
Johnson & Co.	6,852	0	0
Roome & Co.	6,801	0	0
Triggs & Co.	6,797	0	0
King & Son	7,509	0	0
Lole & Co.	6,684	15	4

Amended tenders.

Rice & Son	£5,671	0	0
King & Son	5,530	0	0
Johnson & Co.	5,482	0	0
Lole & Co.	5,307	4	10
Godson & Sons	5,293	0	0
Gathercole Bros.	5,273	7	1
F. & T. Thorne	5,236	0	0
Holloway	5,214	0	0
Roome & Co.	5,202	0	0
Rowley Bros.	5,168	0	0
J. & M. Patrick, Wandsworth (*recommended*)	5,131	0	0
Architect's estimate	5,283	0	0

For rebuilding of No. 541 Holloway Road, for Mr. W. Wooley, as warehouse and residence. Mr. George Carter, architect, 513 Holloway Road, N.

Mattock & Parsons	£1,991	0	0
Parker & Sons	1,969	0	0
Courtney & Fairburn	1,963	0	0
Price	1,947	0	0
Roberts & Co.	1,928	0	0
Patman & Fotheringham	1,875	0	0
Chessum	1,812	0	0
McCormick & Sons	1,746	0	0
Albert Monk, Lower Edmonton (*accepted*)	1,720	0	0
Architect's estimate	1,775	0	0

WALES.

For forming streets and sewers at Aberavon. Mr. J. A. James, architect, Port Talbot.

A. Scott	£1,333	4	3
Brokensha	1,217	3	2
Sayers	1,060	15	8
Barnes, Chaplin & Co.	1,053	0	8
B. M. Davies & Co.	830	3	7
G. M. Scott	769	7	9
B. Davies, Aberavon (*accepted*)	766	9	5

WOLVERHAMPTON.

For erection of the King Edward VII. memorial wing at the Wolverhampton and Staffordshire General Hospital. Mr. A. W. Worrall, architect, Wolverhampton.

Tildesley	£6,900	0	0
H. Lovatt, Ltd.	6,516	0	0
Ham	6,435	0	0
Gough & Son	6,250	0	0
Tooby	6,200	0	0
Cave & Son	6,195	0	0
Willcock & Co., Wolverhampton (*accepted*)	6,185	0	0

The gasworks at Tipton are to be extended by the Urban District Council, at a cost of £10,000.

The Berkefeld Filter Co., Ltd., 121 Oxford Street, W., have been honoured with an order to supply their "Berkefeld" filters for use on board H.M.S. *Medina* during the voyage of King George and Queen Mary to India.

GIDEA PARK EXHIBITION AWARDS.

A complete list of awards issued in connection with the Town Planning and Modern House and Cottage Exhibition at Gidea Park has just been issued. The prize-winners in Classes I., II., IV. and VII. were given in our issue of June 9. The other awards are as follows:—

Class III.—For the best internally fitted house in Classes I. or II.

£25 to Plot 348, Stanley P. Schooling. Builders, Dowsing & Davis.

£25 to Plot 282, Ernest Willmott, F.R.I.B.A. Builders, Wm. Moss & Sons, Ltd.

Class V.—A garden design for house or cottage in Classes I or II.

1. £25 to Plot 43, W. Curtis Green, F.R.I.B.A. Contractors, Falkner & Sons, Barron & Sons.

2. £10 to Plot 208, Geoffry Lucas, F.R.I.B.A. Contractors, Barron & Sons.

Class VI.—A perspective drawing, suitable for reproduction, of a house or cottage entered for competition in Classes I. or II.

1. £10 to H. S. East, A.R.I.B.A. 2. £5 to R. Mauchlen.

Class IX.—Improvements in materials used in house building, &c.

Bricks.

Silver Medal, Plot 244, silver grey bricks supplied by S. & E. Collier, Reading. Architect, C. Williams Ellis; builders, Allen Bros.

Silver Medal, Plot 256, wood burnt brown bricks supplied by Sussex Brick Co., Warnham, Sussex. Architects, Fair & Myer, A.R.I.B.A.; builders, Jones & Andrews.

Artificial Stone Paving.

Bronze Medal, Plot 44, supplied by Victoria Stone Paving Co., Stratford. Architects, A. E. Sawday, F.R.I.B.A., and T. T. Sawday, A.R.I.B.A.; builders, Lovell & Son.

Woodwork.

Highly Commended, Plots 43 and 274, oiled bass wood. Architect, W. Curtis Green, F.R.I.B.A.; builders, Falkner & Sons.

"Considering the Exhibition as a whole, we were impressed not only with the general good quality and interesting variety of the materials used, but also with the abundant ingenuity and taste with which they have been employed."

(Signed) Walter Cave.
Lawrence Weaver.
Judges for Class IX.

Class X.—Improvements in fittings used in house building (sanitary, cooking, lighting and heating, &c.).

Silver Medal, the "B. K." Range, exhibited by the Coalbrookdale Co., Ltd., Berners Street, W.

Silver Medal, the "Interoven" Stove, exhibited by Interoven Patent Stove Co., 78a Great Queen Street, Kingsway, W.C.

(Signed) Max Clarke,
Judge for Class X.

Class XI.—Furnished house.

Silver Medal, Heal & Son, Tottenham Court Road. ("In consideration of their high standard of construction, and also of the effort they have made to raise their work above the level of mere copyism.")

Silver Medal, Waring & Gillow, Ltd., Oxford Street. ("On the grounds that they are supplying furniture, both well made and in good taste, of the kind that is much in vogue at the present, and suitable to the requirements of the purchaser.")

Bronze Medal, Hindley & Wilkinson.

(Signed) Halsey Ricardo,
Judge for Class XI.

SPECIAL AWARDS GIVEN BY GIDEA PARK, LTD.

Class I.—For convenience and practical merit.—Plot 202, Fair & Myer, A.R.I.B.A.; Plot 219, Hugh T. Morgan; Plot 237, Randall Wells; Plot 223, T. Milwood Wilson, L.R.I.B.A.

Class II.—For convenience and practical merit.—Plot 282, Ernest Willmott, F.R.I.B.A.; Plot 287, Jones, Phillips & Whitty; Plot 278, Van t' Hoff & Maxwell.

Class X.—Fittings: special award for merit.—Messrs. The Peerless Heater Co., 70 Bishopsgate Street Within, E.C.; Messrs. The Richmond Gas Stove Co., Ltd., 132 Queen Victoria Street, E.C.

Class XI.—Furniture: special award for merit.—Messrs. Oetzmann & Co., Ltd., Hampstead Road, N.W.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

BEDFORDSHIRE.

Bedford.—Cinematograph Palace, Midland Road.

BERKSHIRE.

Wokingham.—Three houses, Oxford Road.

CHESHIRE.

Ellesmere Port.—Free Library (£1,750).

Weaverham.—Parish Church house.

CORNWALL.

Helston.—Village Institute.

Redruth.—Territorial Drill Hall and Miniature Rifle Range.

Truro.—Grain mill and silos, in reinforced concrete, Malpas Road. Mr. A. J. Cornelius, architect. Mr. W. E. Bennett (of Bodmin), contractor.

CUMBERLAND.

Carlisle.—Post Office, corner of the Crescent and Warwick Road.

Cummersdale.—Council School improvements.

High Scalesceugh.—Farm buildings. Mr. Martindale, F.R.I.B.A. (of Carlisle), architect.

Stoneraise.—Council School improvements.

N.B.—Enquiries re *Cummersdale and Stoneraise* of Clerk of Works, 13 Earl Street, Carlisle.

DEVON.

Chudleigh.—Convent at Oaklands: additions.

Dawlish.—Two cottages, Middlewood.

Plymouth.—Didworthy Sanatorium for Consumptives: new pavilion for six men (£500). Mr. King, F.R.I.B.A., architect.

DURHAM.

Darlington.—Council School, Reid Street.

ESSEX.

Bishop Stortford.—Wesleyan Chapel, South Street: conversion into Electric Theatre.

Burnham.—House, Green Lanes.

Clacton.—St. James's Church.

Coggeshall.—Council School for 200 children.

Orsett.—Fever Hospital: two new blocks, each for ten patients. Mr. Shiner, architect.

Southend-on-Sea.—Trinity Church School Hall and rooms.

Stratford.—Infirmary Nurses' Home. Mr. F. Willmott (of Ilford), contractor (£13,950).

Walthamstow.—St. Matthew's Church, Higham Park.

Witham.—Garage, Newland Street.

GLOUCESTERSHIRE.

Avonmouth.—Sugar refinery, near Royal Edward Dock.

HAMPSHIRE.

Bournemouth.—Thirty-six bungalows on the beach. Council Surveyor.

Portsmouth.—Trafalgar Church of England Soldiers' and Sailors' Institute.

HEREFORDSHIRE.

Ross.—Free Library alterations. Mr. W. Clark, contractor (£563).

KENT.

Beckenham.—Cottage, Upper Elmers End Road.
Eight houses, Marlow Road.
Two houses, Wickham Way.

Stanford.—Parish Room extension.

LANCASHIRE.

Aintree.—Lancs. and Yorks. Railway Station buildings. Engineer, Hunt's Bank, Manchester.

Liverpool.—Six-storey and four-storey mill, Glasgow Street: reinstatement. Mr. J. H. McGovern, architect; Messrs. Jones & Sons, contractors (£1,460).
Four villas, Liverpool and Myers Roads (£1,800). Mr. J. H. McGovern, architect.

Radcliffe.—County Police Station: new Court House and cells. Mr. H. Littler (of Preston), county architect.

Westhoughton.—Council School. Mr. H. Littler (of Preston), county architect.

LEICESTERSHIRE.

Leicester.—Public Hall (£17,000).

Melton Mowbray.—Twenty-nine houses, Woodlands Avenue.

LINCOLNSHIRE.

Caistor.—Isolation Hospital enlargement.

Immingham.—Church Schools (Day and Sunday) (£2,800). Mr. W. Bond (of Grantham), architect. Messrs. Arnold & Sons (of Doncaster), contractors.

Little Steeping.—Parish Church restoration (£1,500).

Potterhanworth.—(Supplementary to November 3) Eight working men's houses. Mr. T. R. Howitt, surveyor.

Spalding.—Public Baths (£3,000).

MIDDLESEX.

Brentford.—Workhouse: educational block for 200 children.

Ealing.—Police Court, Northfield Lane.

West Drayton.—Two houses, Brandville Road.

NOTTINGHAMSHIRE.

Pleasley Hill.—Church completion.

Mansfield.—Council Schools, Moor Lane. Mr. F. P. Cook, borough surveyor.

Worksop.—Parish Church.

STAFFORDSHIRE.

Forsbrook.—Parish Church: enlargement (£1,500).

Hanley.—Electricity sub-station: rebuilding. Borough Electrical Engineer.

Leek.—Council School for 454 children (£5,450). Mr. T. Godwin (of Hanley), contractor (£4,999).

Longton.—Pallissy Works: extensions. Mr. T. Tindal, architect.

Newcastle-under-Lyme.—Villa residence, Clayton Road. Messrs. E. Jones & Jackson (of Hanley), architects.

Stafford.—Laboratories and class-rooms, &c., Cherry Street.
New hall, Crabbery Street.
Eight houses, Friars Road.

Wolverhampton.—Electricity Works extensions, Commercial Road (£11,000).

SOMERSET.

Montacute.—Twelve workmen's houses. Messrs. Petter & Warren (of Yeovil), architects.

Weston-super-Mare.—House, Cecil Road. Mr. E. T. Gillmore, architect.

SURREY.

Chertsey.—Workhouse: children's home (£1,255).

Ewell.—County School, Old School Lane.

Guildford.—Royal Grammar School: gymnasium (£950).

Haslemere.—St. Christopher's Memorial Hall (£1,000).

Purley.—Commemoration Hall: conversion into boys' secondary school (£10,500).

SUSSEX.

Brighton.—Headquarters for the Imperial Service Cadet Corps (£2,000).

Eastbourne.—Princess Alice Hospital: enlargement (King Edward VII. Memorial).

WARWICKSHIRE.

Birmingham.—Homeless Working Girls: New Hostel, St. Mary's Row (accommodation for 108 girls), £7,000.

Coventry.—Market extensions (£1,850).

Wolston.—Church Schools: enlargement.

WILTSHIRE.

Winsley.—Sanatorium extension. Mr. W. S. Skinner, architect (£13,000).

WORCESTERSHIRE.

Malvern, Little.—St. Giles' Church: enlargement and restoration. Mr. W. Tapper, A.R.I.B.A., architect.

YORKSHIRE.

Barnsley.—St. Mary's Church Day School (£4,000).

Carleton.—House. Mr. W. J. Tennant (of Pontefract), architect.

WALES.

Cardiff.—House at Penylan. Mr. R. B. Batchelor, architect.

Llanarmon.—"The Crown Inn": additions and alterations.

Llanystumdwy. — Village Institute. Mr. T. Rees, F.R.I.B.A. (of Liverpool), architect.

Pontypridd.—"The Danygraig Arms," Treforest: alterations. Mr. T. F. T. Jarvis (at the Brewery, Pontypridd).

SCOTLAND.

Broughty.—Board School.

Dundee.—King's Cross Hospital extension (£16,000).
School Board Academy.

Dunfermline.—Twenty-four houses, Townhill Road.
Eighteen houses, Main Street, Townhill.
School Clinics and College Class-rooms for the Carnegie Trustees. (£20,000.)

Glasgow.—Training College, Jordanhill, for 1,200 students.

Hamilton.—Board School, Hope Street, for 1,000 children. (£11,000.)
Infant School, Woodside, for 250 pupils (£2,720).

Inverness.—Science and Art School (£3,000).

Largs.—Five double cottages, Brisbane Street. Mr. Kay (of Hamilton), architect.

Five self-contained two-storey houses, Irvine Road.

Elderslie Pension: extension for billiard-room and fifteen bedrooms.

Leith.—Six cottages, Seafield Avenue.

Paisley.—Drill Hall for the Renfrewshire Fortress Works Company, R.E. Messrs. Craig, Barr & Cook, architects.

Refrigerator for the slaughter-house in Greenock Road.

Double villa, Thornleypark. Messrs. Uric & Sons, builders.

Rathen.—Public School: alterations. Mr. W. E. Gauld, A.R.I.B.A. (of Fraserburgh), architect.

IRELAND.

Tralee.—Convent and Chapel for the Sisters of the Presentation Order. Mr. S. F. Hynes, F.R.I.B.A. (of Cork), architect.

PATENT SPECIFICATIONS PUBLISHED NOVEMBER 2, 1911.

Selected and abridged by James W. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

23085. Oct. 6, 1910.—Ezra Hatton, 110 Sackville Street, Manchester. Improvements in reflectors and other lamp parts exposed to the destructive action of the combustion products.

23092. Oct. 6, 1910.—B. A. Slade, 27 Charles Street, Berkeley Squàre, architect. Improvements in caravans or movable cottages.

23124. Oct. 6, 1910.—William Summers, 3 Townsend Street, Old Kent Road, Southwark. Improvements in apparatus for controlling the flow of liquids.

23144. Oct. 6, 1910.—H. M. Brigwood, 22 Clark Road, Wolverhampton, and T. H. Hill, Astrea Works, Thomas Street, Wolverhampton. Improvements in hooks or clips for securing spouting, piping, and other articles to brickwork, woodwork, or the like.

23448. Oct. 10, 1910.—John Gunning, 100 Holdenhurst Road, Bournemouth. Communicated from Couaillet Freres, St. Nicholas d'Aliermont, near Dieppe. Improvements in apparatus for lighting and extinguishing gas burners at pre-determined hours.

23516. Oct. 11, 1910.—H. T. Gosling, 7 Holly Street, Smethwick. New or improved lock mechanism for safes, strong-rooms, and the like.

23526. Oct. 11, 1910.—August Eckstein and A. C. Heap, Waverley Mills, St. Simon Street, Manchester. Improvements in and relating to spring contacts for electric switches, fuses, and the like.

23561. Oct. 11, 1910.—F. J. Ruse, 109 Melfort Road, Norbury. An improved chamber for hydrant pits and for other purposes.

23621. Oct. 12, 1910.—H. R. Turner, Hillcrest, Rochdale. Improvements in insulating sheets or slabs.

23696. Oct. 12, 1910.—W. J. Russell, 17 Park Road, Wallington. Improvements relating to gas and other stoves for warming and ventilating rooms and the like.

23735. Oct. 13, 1910.—E. B. Koopman and The Pontelec Welding Patents, Ltd., 231 Strand, W.C. Improvements in and relating to electric welding.

23826. Oct. 14, 1910.—Henry Kupper, 29 Cartwright Gardens, St. Pancras. Improvements relating to door fasteners.

23835. Oct. 14, 1910.—Convention application Oct. 19, 1909. H. J. Molinder, Kopmangatan 29, Soderhamn, Sweden. Improvements in or relating to moulds for casting tubes and the like.

23894. Oct. 15, 1910.—August Eckstein and A. C. Heap, Waverley Mills, St. Simon Street, Manchester. Improvements in and relating to electric switchboards.

23977. Oct. 17, 1910.—Alfred Ferguson, 6 Templemore Avenue, Belfast. Lead lap joint for connecting lead flush pipes with horn or earthenware or metal basins.

24451. Oct. 21, 1910.—P. J. Ilott, 41 Park Crescent, Clapham, S.W. Improvements in or relating to slam locks for carriage doors or the like.

24754. Oct. 25, 1910.—F. L. Cross, 1233 Sherman Avenue, Madison, Wisconsin, U.S.A. Improvements in regulators for controlling the flow of gas or air.

24959. Oct. 27, 1910.—John Hallsworth, 9 Ashton Road, Denton. Improved fastener for windows, doors, and the like.

25049. Oct. 28, 1910.—Thomas Thorp Franklin & H. T. Thorp, of Victoria Works, Narrow Lane, Besses o' the Barn, Manchester. Improvements in apparatus for the combustion of mixture of gas and air in enclosed spaces.

25120. Oct. 29, 1910.—Geo. Hookman, 7 New Bartholomew Street, Birmingham. Improvements in the manufacture of matting and stair treads.

25175. Oct. 29, 1910.—Convention application November 5, 1909. Alcock & Co. Proprietary, Ltd., 155 Elizabeth Street, Melbourne, Victoria. Improved electric process for drying timber.

25547. Nov. 3, 1910.—W. E. Parkes, Union Works, Willenhall. Improvements in locks and latches.

25956. Nov. 8, 1910.—Charles Pooley, 190 Fleet Street, Dick Burge, 197 Camden Road, N., and W. R. Pether, 124 Chancery Lane, E.C. An apparatus for cooling air and the like.

26724. Nov. 17, 1910. A. G. Burrell, Silverdale, West Port, Lanark. Improvements in and relating to the locking or securing of sash windows.

26790. Nov. 17, 1910.—H. J. Bebauche, Gilly, Belgium. Improvements in processes for moulding briquettes and the like.

26909. Nov. 19, 1910.—A. J. Chapman, 194 Ebury Street, Pimlico, S.W., and H. E. Mason, 40 Park Place, Bayswater. A universal angle grip for flexible electrical cords.

27508. Nov. 26, 1910.—Clement Heath, 18 York Street, Basford, Stoke-on-Trent. An improved combined bell push and temperature alarm.

27818. Nov. 30, 1910.—J. A. Hill, Ordnance Works, Bernard Road Park, Sheffield. Improvements in and relating to stone drying stoves for tar macadam manufacture.

28381. Dec. 6, 1910.—J. B. Fesler, 256 West 23rd Street, New York. Improvements in or relating to fountain brushes.

29276. Dec. 16, 1910.—C. W. Trotman, Avonside, Cumberland Road, Bristol. Improvements in and relating to domestic fireplaces.

30123. Dec. 28, 1910.—Paul Leist-Wettler, Schonenwerd, Canton Solothurn, Switzerland. Improvements in fastening devices for casements and other hinged shutters.

30266. Dec. 30, 1910.—C. B. Hoare, Croft Lodge, Highgate Road, N. Improvements in or connected with appliances for cutting circular apertures in boiler and like plates.

68. Jan. 2, 1911.—Fred Wilkins & Brother, Ltd., and R. H. Hutchinson, 27 Duke Street, Liverpool. Improvements relating to fire-resisting screens, curtains, and the like.

444. Jan. 7, 1911.—T. W. Twyford, Cliffe Valve Potteries and Enamelled Fireclay Works, Hanley, Stafford, Improvements in flushing valves.

592. Jan. 9, 1911.—A. & D. Weikel, Middletown, Butler, Ohio. Improvements in or relating to safes, vaults and other compartments or receptacles.

659. Jan. 10, 1911.—Convention application Jan. 13, 1910. E. K. H. Borchers, Friedenau, Prussia. Improved apparatus for testing gases, steam or other vapours, and recording the solid and liquid admixtures therein.

1195. Jan. 17, 1911.—D. J. Falconer, 6 West Park Road, Southampton. Fastenings for window and similar sashes.

1399. Jan 19, 1911.—J. H. Cartland & E. J. Teale, 68 Constitution Hill, Birmingham. Improvements in the manufacture of door closing springs.

2030. Jan. 26, 1911.—M. B. Mountain, C. R. Heron & W. F. Hobdell, St. John's House, 124 Minories, E.C. Improvements in roller shutters.

2564. Feb. 1, 1911.—S. H. Adams, A.M.I.C.E., White House, Fulford, York. Improvements in or relating to adjustable syphons applicable for the supply of liquid to filters.

2898. Feb. 4, 1911.—C. M. Burrell, 7 Wickstead Place, Wanganui, N.Z. Improvements in and relating to domestic and the like baths.

3684. Feb. 14, 1911.—Robert Charlton, Manors Brass Works, Newcastle-on-Tyne. Improvements in storm valves.

3918. Feb. 16, 1911.—M. J. Railing and A. J. D. Krause, of the G.E. Company's Engineering Works, Witton, Birmingham. Improvements in electric fans.

4794. June 1, 1911.—J. E. Squires, 24 Hambro Road, Streatham. Improvements in or relating to cleaning and sifting apparatus.

7260. March 23, 1911.—W. H. Tonks & Walter Sparks, of 201 Moseley Street, Birmingham. Improvements in opening and closing mechanism for hinged windows or fanlights.

7488. March 25, 1911.—Max Mannesmann, Remscheid-Bliedinghausen, Germany. Improvements in or connected with the construction of buildings.

7489. March 25, 1911.—Max Mannesmann, Remscheid-Bliedinghausen, Germany. Improvements in or connected with staircases of reinforced concrete.

7490. March 25, 1911.—Max Mannesmann, Remscheid-Bliedinghausen, Germany. Improvements in or connected with the construction of buildings.

7672. March 27, 1911.—Convention application March 28, 1910. Albert Goldstein, 114 Liberty Street, New York. Temperature alarm device.

7786. March 29, 1911.—Joseph Southall, Worcester Foundry, Worcester. Improvements in machines for washing sand.

9249. April 13, 1911.—Jacob Pfeiffer, of the firm of Gebruder Pfeiffer, Kaiserlautern, Germany. Improvements in rotating drum apparatus for drum grinding mills.

10235. April 27, 1911.—Mitsui & Co., Ltd., 34 Lime Street, and A. C. Chapman, 8 Duke Street, Aldgate. Improved packing material and the processes for making the same.

11557. May 12, 1911.—Edgard Frankignoul, 196 rue Gretry, Liege. Improvements in or appertaining to foundations.

13623. June 7, 1911.—Convention application July 2, 1910. August Schaeffer, 40 Moselstrasse, Frankfurt a/M. Air propeller driven by electric motor.

18120. Aug. 10, 1911.—E. von Seidlitz und Ludwigsdorf, Ranzow, Rugen, Germany. Improvements in door stops.

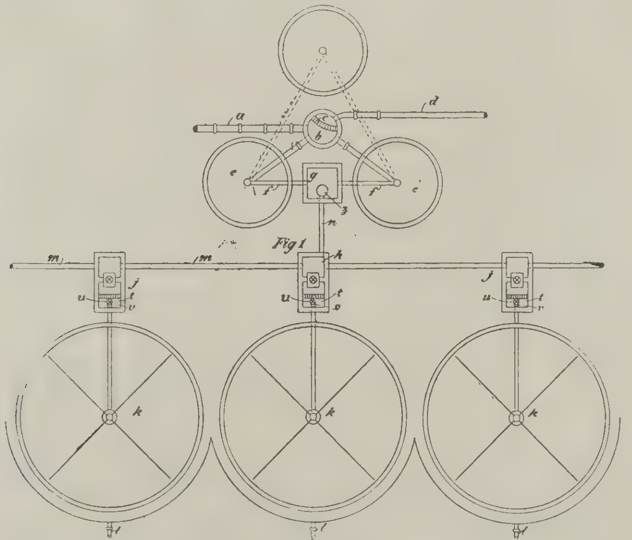
19170. Aug. 26, 1911.—Convention application Aug. 27, 1910. J. F. Bjurlund, 1331 Napier Avenue, Ozone Park, Richmond Hills, Long Island, N.Y. Improvements in sash holders.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

No. 2,564. February 1, 1911.—Improvements in or relating to Adjustable Syphons applicable for the supply of Liquid to Filters. S. H. Adams, A.M.I.C.E., White House, Fulford, York. The object of this invention is to divert or to separate the supply of sewage which is to be filtered or treated in such a way that the proportions delivered to any of the filtering areas shall be equal, so that in work, assuming that two filtering areas are in operation then the sewage would be divided equally between the two, and if three were in operation then the sewage would be divided equally among the three. This division is effected by means of syphonic weirs which are in effect syphons, but they are carried in a suitable frame just as a penstock door is carried, and they rise and fall just as a penstock door would rise and fall, operated by a hand screw or other means. It is evident that if one of these syphonic weirs is set at a low level and another at a high level, the one at the low level only will pass the sewage through it until the sewage has risen to such a height that it will overflow the syphonic weir which is placed at the high level, and then this syphonic weir will come into operation as a syphon, and the two together, each working and each discharging to its separate area, will deliver practically equal volumes to these areas. Fig. 1 is a general plan of the tanks and filters. Fig. 2 a cross-section to a larger scale showing the syphonic weir, and Fig. 3 a plan of same. *a* is the supply pipe to the chamber *b*, the overflow from which passes over the weir *c*, to the storm-water outlet *d*. The sewage enters tanks *e*, *e*, and from thence passes through pipes f f_0 to the dosing tank *g*, and through syphon *z* (through pipe *n*) to the chamber *h*, which is connected by the pipe *m* to similar chambers as shown at *j*, *j*. The liquid from these chambers is distributed by revolving distributors upon the filters *k*, *k*, *k*, passing through and being discharged to the effluent outlets at *l*, *l*, *l*. Each of these distributing chambers is fed by the supply pipe *m*, to which they are connected. The incoming pipe is shown at *o*; this discharges into the small chamber *p*, from which sewage passes through the syphonic weir *q* to the weir chamber *r*, being thence discharged over the weir *s* to the chamber *t*, in which is a draw-off valve *u*, with a bell-mouth overflow *v*, discharging to the supply pipe *w* the sewage to the filters *k*, *k*, *k*. At *x* is a hand wheel, by means of which the syphonic weir *q* is raised or lowered in its frame. It will be seen that these syphonic weirs may be raised or lowered to any desired height, and that whatever number of weirs may be in operation they will deliver an equal volume of sewage to the distributors or to the filter-beds or land. October 18, 1911.



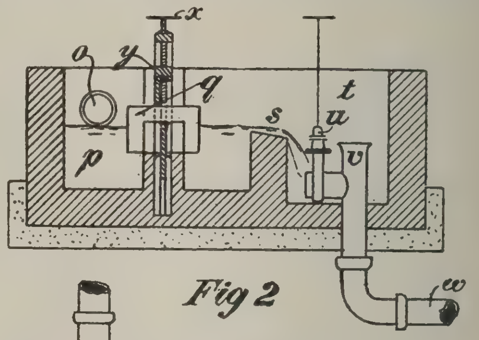


Fig 2

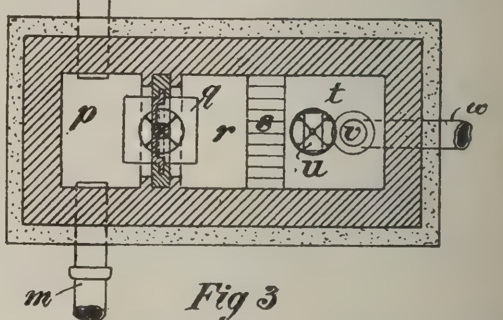
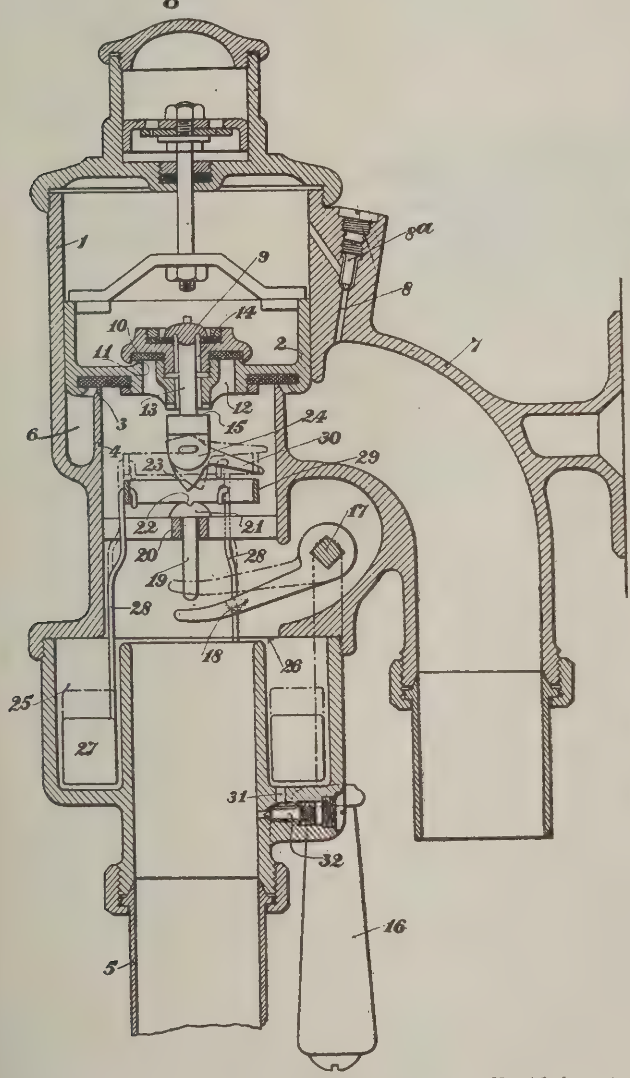


Fig 3

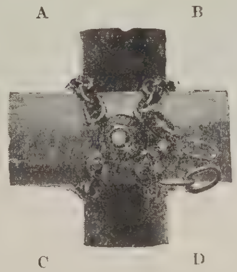
No. 444. January 7, 1911.—Improvements in Flushing Valves. T. W. Twyford, Cliffe Vale Potteries and Enamelled Fireclay Works, Hanley, Stafford. This invention relates to flushing valves employed in connection with water-closets, urinals, slop sinks, and for other uses, for the purpose of giving a direct flush without the use of a flushing cistern. The type of appliance to which the invention relates comprises a main valve, adapted to rise and fall within a chamber, and having a portion of its underside subjected to the pressure of the main supply of water, the chamber being normally filled with water through a by-pass leading from the main pipe upon the inlet side of the valve so that the pressure of the water keeps the valve closed until the water is expelled or allowed to escape from the chamber. Fig. 1 is a vertical section. The appliance comprises a cylindrical chamber 1 containing the rising and falling main valve 2, which normally rests upon a seating 3 at the upper end of an outlet passage 4, leading to the discharge or flush pipe 5, and forming, with the walls of the lower part of the top chamber, an annular space 6, which at one side opens into a branch pipe 7 connected to the main supply. The valve 2 overhangs the seating, so that when closed the pressure of the water acts on the underside of its outer edge, and tends to lift it off its seating. Leading from the inlet branch 7 into the top chamber 1 is a by-pass 8, through which the chamber is filled with water, the pressure of which normally keeps the main valve upon its seating. The by-pass 8 is provided with a regulating screw 8*a*, so as to vary the quantity of water that passes, and thus the time the chamber takes to fill and the period of the flush. The main valve is fitted with a relief valve, comprising two parts, consisting of a small preliminary relief valve 9, and a larger or main relief valve 10. The latter rests upon a seating 11 upon the main flush valve 2, so as to close an opening 12, whilst the small valve 9 is carried by the upper end of a vertical stem 13, passing through a guide passage in the valve member 10, and is adapted, when lifted, to open an outlet passage 14, so as to thereby ease the pressure in the top chamber prior to the large valve chamber being lifted, thus rendering the operation of the hand-lever easier. The central valve stem is directly lifted by the actuating device, and is provided near its lower end with a shoulder 15, which, after the valve 9 has lifted a little way and relieved the pressure, engages with the main member 10 of the relief valve, so that both parts then rise together to allow of the emptying of the top chamber, and relieving the pressure upon the main valve. The actuating device is an external lever-handle 16, carried by a transverse spindle 17, turning in bearings and passing through stuffing glands for preventing leakage. The spindle carries a lever arm 18, which engages a pin 19 within a guide hole in a bridge-piece 20. This pin has a head 21 provided with a recess 22, which normally comes beneath the lower pointed end of a rocking member 23, pivoted between the sides of the forked lower end 24 of the valve stem 13. When the handle 16 is actuated, the arm 18 lifts the pin 19, causing the recess 22 in the head 21 to engage with the rocking member 23, and lift the relief valve 9, 10, off its seating. In order to prevent a continuous flush from being obtained by keeping the external handle depressed, the chamber 25 opens at the top through a restricted entrance 26, and within this chamber is a ring float 27, which carries arms 28 and a ring or band 29. When the flush occurs the water, in passing through the appliance, enters the float chamber, and so lifts the float, and the ring 29 strikes a lateral arm 30 of the member 23, causing the latter to swing aside, as shown by dotted lines, and its lower end to disengage itself from the recess 22. The float chamber has a small outlet passage 31, controlled by a screw 32, through which the water can gradually escape. Thus the float falls, and after a predetermined time allows the swinging member 23 to asume its normal position, and re-establish the connection between the relief valve and operating handle. October 18, 1911.

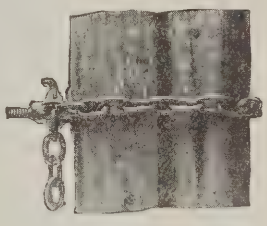
Fig. 1.



"SCAFFIXER" SCAFFOLD TIES.

The latest pamphlet issued by the Patent Rapid Scaffold Tie Company, Limited, 124, Victoria Street, S.W., is splendid evidence that the device has "caught on" among the large contractors throughout the country. The list of users is a long and imposing one, and it is backed up by a number of photographs of recent big jobs showing scaffolding with the Scaffixer ties. These ties are British steel forgings, while the scaffixer blocks are sheradised and perfectly rustless. In working they are simple and strong. To make a ledger tie, for instance, it is only necessary to hook the end link of one chain on to horn "A," next to pass this chain round the standard or to horn "B" by nearest link; the end of a second chain is hooked on to horn "C," and is then passed round the standard to horn "D." This lower chain must be pushed well up behind the standard, and then screwed up. It is hardly necessary to mention that before commencing to fix the chains it is necessary to drive the spike of the block firmly into the pole after screwing the nut well down to the base-plate. For light scaffolds a ledger tie may be made with one chain fixed diagonally, say from "A" to "D." In a hemping or bracing tie the end link of the chain is hooked to one horn of the hook plate, the chain is then passed round the poles to the opposite horn, and the block is then screwed up. The Company have also a Scaffixer Bracket for temporarily supporting the ledger (horizontal) pole until the permanent Scaffixer ties are made.





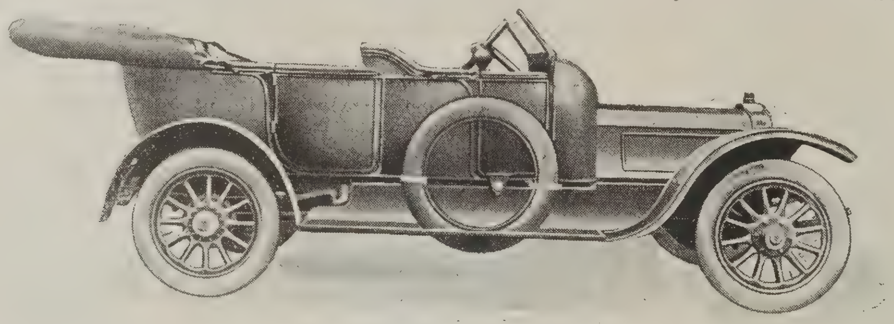
The above explains how the Scaffixer ties are used. And now a word as to why they are used and by whom they are used. Perhaps the former is best explained by the following letter sent by Messrs. W. J. Fryer & Co., who exclusively employed them in erecting large new works at Hayes, Middlesex:—"We have now gone into the costs of erecting the scaffolding at Hayes (a £20,000 contract), and are pleased to be able to inform you that the use of your Scaffixer ties has enabled us to effect a very considerable saving, both in the amount of scaffolding and in the rapidity of its erection, and we have therefore decided to use your scaffold ties." Among the London jobs shown in the booklet are the Middlesex Theatre of Varieties, Drury Lane, W.C. (contractors, Messrs. Allen & Co.); the new Hovis Bread Mills, Vauxhall Bridge, S.W. (contractors, the British Fireproof Construction Co.); the new Money Order Office, Holloway, N. (contractors, Messrs. Leslie & Co., Ltd.); the Y.M.C.A. building in the Tottenham Court Road (contractors, Messrs. John Greenwood, Ltd.); the new Victoria Palace of Varieties, Victoria Street, S.W. (contractors, Messrs. H. Lovatt, Ltd.); the Imperial Hotel Extension, Southampton Row, W.C. (contractors, Messrs. Jas. Smith & Sons (Norwood), Ltd.); the Savoy Hotel extension, 1910 (contractors, Messrs. Leslie & Co., Ltd.); the Peabody Trust Buildings, at Fulham (contractors, Messrs. W. Cubitt & Co.); L.C.C. Repair Depôt, Woolwich (Chas. Wall, Ltd.). The list of names includes, of course, firms in the provinces as well as in London. In conclusion, we may mention that the ties may be hired at a nominal expense with the option of purchasing or returning them.

The Vestry of the parish of Birmingham have passed a resolution authorising the enclosure of some 46 acres of land or thereabouts in the parish of Hales Owen for the purpose of a burial ground, the laying out of the land and the building of the necessary chapel or chapels at a sum not exceeding £25,000. This resolution also sanctioned the borrowing of any money required not exceeding that sum.

THE TALBOT MOTOR-CAR.

If we were asked to select an industry that seemed to be "booming" more than any other, our choice would certainly fall on the motor industry. That really does appear to "move." What would the organisers of the Building Trades Exhibitions at Olympia give to be able to rival the attendance during the first two days of the present Motor Exhibition there—40,000 people! This must constitute a record for any show at Addison Road. The reasons for such popularity are no doubt very varied. A fair proportion of those forty thousand visitors must have been directly connected with the industry, while very many others were intending purchasers, and others again went to admire the cars from an abstract point of view. The time has not yet come when motor cars will be as common as bicycles, though prophets stoutly affirm that it is not far off. But whether that is correct or not, there can be no shadow of a doubt the motor-car is becoming an every-day necessity for professional men, and that the man of moderate means welcomes the possibility of acquiring one at not too costly a figure, and yet which is of perfect reliability.

Such a car is the "Invincible Talbot," and every visitor to the Motor Exhibition should make a point of calling at the Company's stand. We give this opinion with no timidity (though freely admitting the possession of only a layman's knowledge), because of the record of the Talbot car established in many contests during the present year. Here are three results: (1) in an "efficiency" contest arranged by the Bradford and Huddersfield Clubs at Meltham Hill a 15 h.p. Talbot scored 1.4933 marks, while the next highest was a 20 h.p. car with 1.4280 marks; (2) a Talbot car weighing 3,662 lb. won the Transvaal Park trophy by running 166 miles on 3⅛ gallons of petrol; and (3) last month in the Caerphilly hill climb contest the Talbot was not only first in its class, but made the fastest time, and won five gold medals.



THE 15 H.-P.

TALBOT.

One of the fascinations about motors is that each month, if not each week, seems to bring some improvement in the mechanism. Keen competition keeps the various makers on the qui vive for new ideas. In the latest type of Talbot the novel features include a Stewart-Talbot carburettor by which automatically the car can be driven at anything from a child's crawl to highest racing speed, and which when once adjusted need not be touched again so long as the car is in use. Other improvements are a new clutch and a new sprag. The Talbot is a highly efficient car, with an unusually accessible engine, of low consumption, and splendid hill climbing powers.

VARIETIES.

The Saddleworth District Council have secured an option to purchase over twenty acres of land, on which they propose to erect workmen's dwellings as a relief to the existing house famine.

Dalkeith Town Council have resolved to erect a concrete bridge over the North Esk, giving an improved entrance from Eskbank to Dalkeith Public Park, which the Duke of Buccleuch presented to the inhabitants in commemoration of his golden wedding. The expenses of the bridge have been partly met by subscriptions in Dalkeith and Eskbank.

The Hamilton School Board have approved of plans for a new school, near the site of the old Academy in Hope Street, to accommodate 700 elementary and 300 intermediate pupils, at an estimated cost of from £10,000 to £12,000, and an infant school at Woodside, to cost £2,720, accommodating 250 scholars.

Mr. H. R. Cooper held a Local Government Board inquiry at the Wolverhampton Town Hall recently into the Corporation application for sanction to borrow £11,000 for the extension of the buildings and plant at the electricity generating station, Commercial Road. It is proposed to spend £5,600 in buildings and structural work, including battery room £1,900, sub-station £800, workshop and stores £1,440, offices £760, and travelling crane and steelwork for substation £540. Further, there is £400 for workshop equipment, and another £5,000 for electrical machinery and switch gear.

The Local Government Board have written to the Middlesex County Council sanctioning the borrowing of £65,449 for the erection of the new Guildhall, the Board having deducted from the amount asked for by the County Council £7,186 in respect of the debt outstanding on superseded work, less value of old materials.

At the general meeting of the Wolverhampton and District Architectural Association, held at the Library, Waterloo Road, the following officers for the year 1912 were appointed: Mr. T. H. Fleming, president; Mr. W. J. Oliver, vice-president; Mr. A. W. Worrall, hon. treasurer; Mr. W. Weller, hon. secretary (15 King Street); Messrs. F. T. Beck, W. Edwards, and A. Eaton Painter, members of the Council.

The Spalding Gentlemen's Society, which has existed since 1709, and is the oldest antiquarian Society in the country, last week established themselves in a new home, and opened a new museum and library. The opening ceremony was performed by Sir Henry H. Howorth, K.C.I.E., F.R.S., F.S.A., President of the Royal Archæological Institute, and of the Royal Numismatical Society. The new building has been erected to celebrate the bi-centenary of the foundation of the Society, and to form a memorial to the founder, Mr. Maurice Johnson. Its erection was rendered possible by the generosity of the late Mr. Edward Bentle, of Spalding, and other members of the Society. The building is in the Tudor style, the front being of dark red brick work, with stone dressing.

The foundation-stone of a new church at Woodlands, Doncaster, has been laid by Mrs. Thellusson, of Brodsworth Hall, the Bishop of Sheffield officiating. The church when completed will consist of a nave with north and south aisles, with tower and spire at the north-west corner, and a chancel with sacristy, choir vestry, and organ chamber, and morning chapel. It will have seating accommodation for 500 persons. Messrs. Mullins & Richardson, builders, Doncaster, are carrying out the work, which is from the designs of Mr. W. H. Wood, F.R.I.B.A., successor to the late Mr. C. Hodgson Fowler, F.S.A., of Newcastle and Durham.

Tenders are invited by the municipal authorities at Montreal for the supply and erection of a 12,000,000-gallon steam-driven, high-lift centrifugal pump at the low level pumping station in that city. Sealed tenders, enclosed in special envelopes, will be received by the Board of Commissioners, City Hall, Montreal, up to December 1. A deposit of $4,000 (about £820) must accompany each tender. Copies of the specification, &c., may be obtained on application to the Superintendent of the Water Works, City Hall, Montreal. A copy may be seen by British makers at the Commercial Intelligence branch of the Board of Trade, 73 Basinghall Street, London, E.C.

In his report on the trade of Saxony, Mr. Vice-Consul R. Turner refers to the extremely active nature of building operations at Leipzig and other industrial centres of the kingdom during the past year, and specially alludes to the new central railway station in the city just named, the erection of which is making rapid progress, and which will, when finished, have cost the town, the Saxon Government, and the Prussian Government £7,000,000. This work is being carried out almost entirely by local firms. In Leipzig there appears to be a remarkable movement for the demolition of old buildings, both residential and industrial, and the erection of new and more commodious ones in their place, which is taken to be a satisfactory indication of the growing prosperity of the district.

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EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

⁂ *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Bolton.—Jan. 6.—The Lancashire and Cheshire Miners' Federation invite architects in independent practice within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1s. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton. N.B.—The time for sending in applications and designs has been extended from Dec. 1 to Jan. 6.

Bristol.—Messrs. H. J. Packer & Co., Ltd., chocolate manufacturers, invite designs for a pavilion proposed to be erected on the recreation grounds. A premium of £10 will be awarded to the architect whose design is accepted. Apply to Messrs. H. J. Packer & Co., Ltd., Greenbank, Bristol.

Hastings.—Dec. 31.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1s. deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

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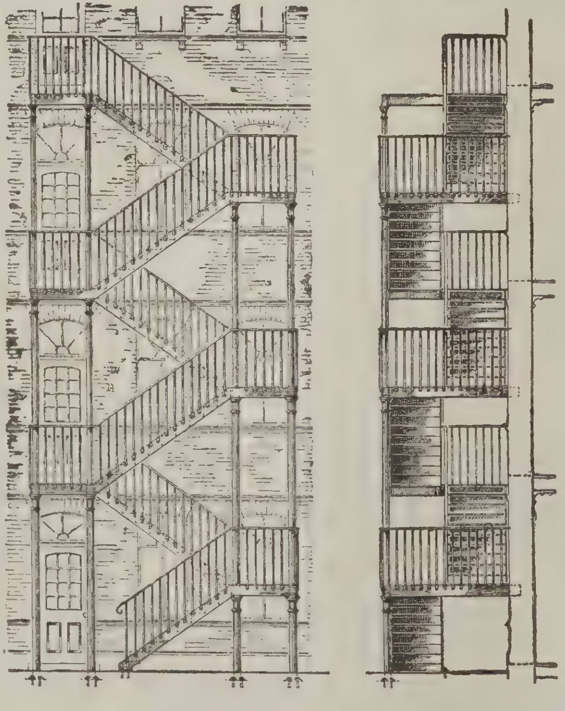

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London.—The Port of London Authority invite preliminary sketch designs in competition for new head offices proposed to be erected in Trinity Square, and for the laying out of the remainder of the land as a building site. From the sketches submitted the authors of not more than six designs will be selected to submit designs in a final competition at an honorarium of 200 guineas each, the Authority reserving to themselves the right, on the advice of their assessor, to invite not more than six other architects to send designs in the final competition. The assessor appointed is Sir Aston Webb, R.A. Conditions of the competition, with full particulars of the accommodation required, plan of the site, and photographs of the adjoining buildings, can be obtained on application, on payment of £1 1*s*., which sum will be refunded on receipt of a bona-fide design, or on the return of the particulars within three weeks, to The Secretary, Port of London Authority, 109 Leadenhall Street, E.C.

Rochdale.—Dec. 22.—The Board of Management of the Infirmary invite architects practising in Rochdale prior to January 1, 1911, to submit plans, designs, and estimates for extending the present buildings. Conditions of competition, with other information, together with instructions to architects, can be obtained on application to the secretary. An assessor has been appointed by the committee. Mr. T. Elvyn Kershaw, secretary, Secretary's Office, the Infirmary, Rochdale.

Sofia (Bulgaria).—Dec. 15.—H.M. Minister at Sofia reports that the "Commission Permanente de l'arrondissement de Sofia" invite the submission of designs for a municipal building which it is proposed to erect at that place. Four prizes to the value of 7,000 fr. (£280), 3,000 fr. (£120), 2,000 fr. (£80), and 1,000 fr. (£40) respectively will be awarded. Architects desirous of competing must submit their designs at Sofia by Dec. 15. Copies of the programme, &c., may be obtained on application to the "Commission," as above. A copy of the programme, together with a drawing, may be seen at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

Stafford.—The Corporation invite designs for a public library. A professional assessor has been appointed. Send £1 deposit, which will be returned on receipt of a bona-fide design, or the return of the conditions, &c., within one month of receipt. Mr. William Plant, A.M.Inst.C.E., borough engineer, Borough Hall, Stafford.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Wales.—Nov. 30.—The Cardiff Education Committee invite designs and estimates for a technical institute proposed to be erected in Cathays Park. Mr. J. S. Gibson, architect, will act as assessor. Full particulars will be sent to architects on application, accompanied by a deposit of £2 2*s*., which will be returned to all architects submitting bona-fide designs or who return the conditions within six weeks. Mr. J. Jackson, director of education, Education Offices, City Hall, Cardiff.

CONTRACTS OPEN.

Balby.—For new class-rooms for the Wesleyan Church, Balby, Doncaster.—Send names to Messrs. H. Beck & Son, architects, 28 High Street, Doncaster.

Birmingham.—Dec. 4.—For alterations and additions to the electric sub-station, Dale End. Send names and £2 2*s*. deposit by Nov. 20 to Mr. A. Rowse, quantity surveyor, King's Court, 117 Colmore Row, Birmingham. Messrs. E. Harper, F.R.I.B.A., & Bro., architects, Ruskin Chambers, 191 Corporation Street, Birmingham.

Birmingham.—Dec. 4.—For erection of an electric substation in War Lane, Harborne. Send names and £2 2*s*. deposit by Nov. 20 to Mr. A. Rowse, quantity surveyor, King's Court, 117 Colmore Row, Birmingham. Messrs. A. Harrison & Cox, architects, Council Chambers, 109 Colmore Row, Birmingham.

Blackpool.—Nov. 25.—For alterations in connection with the baths at Cocker Street. Mr. J. S. Brodie, borough engineer, Town Hall, Blackpool.

Bournemouth.—Nov. 20.—For the erection of law courts and other works in connection therewith, for the Town Council. Deposit £1 1*s*. Mr. F. W. Lacey, F.R.I.B.A., borough engineer, Municipal Offices, Bournemouth.

Bradford.—For the several trades required in erection of a children's home at Thackley. Deposit £1 1*s*. Mr. Fred Holland, architect to the Board, 22 Manor Row, Bradford.

Bradfield.—Nov. 27.—The Guardians of the Bradfield Union invite tenders for certain Sewage disposal works, re-drainage and additions and alterations to the infirmary and workhouse. Deposit £5. Mr. H. Howard Humphreys, 28 Victoria Street, in the City of Westminster.

Caistor.—Nov. 24.—For (a) brickwork, (b) hedge planting, (c) wood fencing, (d) stone coping, (e) levelling, required in the laying out of a new cemetery at Caistor, Lincs. Mr. J. E. Lamb, solicitor, Caistor

Childrey (Berks).—Dec. 8.—For erection of a Council School for 138 scholars. Send names and £2 2*s*. deposit by Nov. 18 to the Secretary, Berkshire Education Committee, The Forbury, Reading.

Cumberland.—Nov. 25.—For the whole of the work required in connection with improvements, &c., to Cummersdale and Stoneraise Council schools, for the Cumberland Education Committee. The Education Committee's Clerk of Works, 13 Earl Street, Carlisle.

Edinburgh.—Dec. 7.—The Commissioners of H.M. Works and Public Buildings are prepared to receive tenders for the alteration and extension of the Central Telephone Exchange, Rose Street, Edinburgh. Tenders are required for the whole work, and not for separate trades. Deposit £1 1*s*. H.M. Office of Works, Edinburgh.

Epworth.—Dec. 14.—For making alterations and additions at the Council school at Epworth, for the Lindsey County Council Education Committee. Send names and £1 1*s*. deposit by Nov. 27 to Messrs. Scorer & Gamble, architects, Bank Street Chambers, Lincoln.

Glasgow.—Dec. 11.—For the following works required in connection with alterations proposed to be executed at Partick Tramway Depot, viz.:—(1) Digger, mason, and brick works; (2) carpenter and joiner works; (3) slater and plaster works; (4) plumber work; (5) steel work. Mr. Jas. Dalrymple, General Manager, Glasgow.

Golcar.—Nov. 23.—For the various trades required in erection of a dwelling-house in East Street. Mr. A. Shaw, architect, Golcar, Yorks.

Hermitage (Berks).—Dec. 8.—For erection of a Council School for 124 scholars. Send names and £2 2*s*. deposit by Nov. 18 to The Secretary, Berkshire Education Committee, The Forbury, Reading.

Hampton Court.—Nov. 24.—For erection of houses for firemen at Hampton Court Palace, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

Harlow.—Nov. 18.—For erection of a cookery and manual instruction centre at the Fawbert and Barnard Schools, Harlow (buildings contain about 33,000 cubic feet). Send applications and £2 deposit by Nov. 18 to Messrs. Tooley & Foster, architects, Council Offices, Buckhurst Hill.

Lancaster.—Dec. 13.—For erection of the girls' grammar school on the High Street estate. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Liverpool.—Nov. 30.—For extensive alterations at the Territorial quarters and drill hall, consisting of Nos. 73, 75, 77 and 79 Shaw Street, for the West Lancashire Association. Deposit £1 1*s*. Mr. J. C. Walker, architect, Westminster Chambers, Crosshall Street, Liverpool.

London.—Nov. 21.—For the renewal of a portion of the steel superstructure of the Smithfield Goods Station, for the Great Western Railway. The office of the Engineer, Paddington Station, London, W.

Nelson.—Nov. 25.—For the erection of central sanitary conveniences in Vine Street: (1) Excavator, drainer, mason and bricklayer's work; (2) carpenter and joiner's work; (3) plumber and glazier's work; (4) painter's work. Mr. W. Shackleton, A.M.I.C.E., borough engineer and surveyor, Town Hall, Nelson.

Oldham.—Nov. 22.—For the execution of the works required in erection of corridors between infirmary and workhouses. Messrs. Taylor & Simister, architects, 29 Queen Street, Oldham.

Poole.—Nov. 27.—For erection of the following temporary buildings at the isolation hospital, Ringwood Road—viz.: (a) a block for eight patients; (b) a block for four convalescent patients. Mr. S. J. Newman, F.R.I.B.A., borough surveyor, Municipal Offices, Market Street, Poole.

PORTSMOUTH.—Nov. 28.—For the erection, completion and maintenance for six months of a house as residence for the engineer in charge, on the east side of the Eastney pumping station. Deposit £1 1s. The Borough Engineer's Offices, Town Hall, Portsmouth.

PORTSMOUTH.—Nov. 22.—For works to be done and materials to be supplied in constructing, and maintaining for six months, of two common dressing-rooms and a diving-stage at the Stamshaw swimming-pond. The Borough Engineer's Offices, Town Hall, Portsmouth.

RADCLIFFE.—Nov. 30.—For alterations and additions (including new court-house and cells) to the county police station at Radcliffe, near Bury. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

RUGBY.—Nov. 24.—For erection and completion of 19 cottages in Acacia Grove, for the Vendors of the Park Estate. Deposit £2 2s. Messrs. Franklin & Newman, M.S.A., architects and surveyors, Rugby.

ST. NEOTS.—Dec. 4.—For alterations and additions to St. Neots Council School, Hunts. Deposit £1 1s. Mr. H. Leete, county surveyor, Huntingdon.

SALFORD.—Nov. 28.—For construction of lodge at entrance of Peel Park. Deposit £1 1s. Mr. W. H. Matley, architect, 14 Ridgefield, Manchester.

SHEFFIELD.—Dec. 5.—For the following, for the Sheffield United Gaslight Co.—viz.: (Tender No. 1) supply and erection of a steel roof and floor, forming a purifying house, 167 ft. long by 47 ft. 6 in. wide; (Tender No. 2) supply and erection of five cast-iron purifier boxes, 38 ft. by 32 ft. by 6 ft. 3 in., with luteless steel covers. Mr. J. W. Morrison, M.I.C.E., Commercial Street, Sheffield.

SOUTHEND-ON-SEA.—Nov. 20.—For erection of stables, coach-house, coal, and other stores at the sanatorium, for the Corporation. Deposit £1 1s. Mr. E. J. Elford, borough engineer.

SOWERBY BRIDGE.—Nov. 23.—For the several works required in connection with the erection of a shed and warehouse, also extensions to foundry, at Globe Works, Sowerby Bridge, Yorks, for Messrs. W. P. Eglin, Ltd. Messrs. C. Williams & Sons, architects, Post Office Buildings, Commercial Street, Halifax.

STOCKTON-ON-TEES.—Nov. 20.—For alterations to the free library. The Borough Engineer's Office, Town Hall, Stockton-on-Tees.

TREDINGTON.—Dec. 2.—For erection of an isolation hospital with outbuildings and for alterations and additions to the existing hospital at Tredington, near Tewkesbury. Deposit £1 1s. Mr. J. Villar, F.S.I., M.S.A., architect, 5 Essex Place, Cheltenham.

TOTTENHAM.—Nov. 25.—For the following works at the Down Lane School, for the Tottenham Education Committee—viz., low-pressure hot-water heating apparatus, pitch-pine block flooring, tar-paving, stoves and ranges, and roller window blinds. Send names and £1 1s. deposit by Nov. 25 to Mr. G. E. T. Laurence, A.R.I.B.A., architect, 22 Buckingham Street, Adelphi, W.C.

TOTTENHAM.—Nov. 25.—For erection of a permanent school to accommodate 800 children on the Downhills site, West Green, for the Tottenham Education Committee. Send names and £2 2s. deposit by Nov. 25 to Mr. G. E. T. Laurence, A.R.I.B.A., 22 Buckingham Street, Adelphi, W.C.

WALES.—For erection of business premises on the Square, Caerphilly, Glamorganshire. Send names, with a deposit of £3 3s., to Mr. W. H. Shute, Corn Exchange Chambers, Newport.

WALES.—Nov. 18.—For erection of new boiler house at the Cardiff workhouse. Mr. E. Seward, F.R.I.B.A., architect, Queen's Chambers, Cardiff.

WALES.—Nov. 21.—For erection of new girls' school at Troedyrhiw, Merthyr Tydfil. The Deputy-Surveyor, Town Hall, Merthyr Tydfil.

WALES.—Nov. 22.—For erection and satisfactory completion of 12 houses, &c., and new road on the Beaufort estate, for the Glanhowy Building Club, at Scwrfa, Dukestown, Tredegar. Messrs. T. Williams & Sons, architects and surveyors, 101 Commercial Road, Tredegar, and 1 Gilfach Street, Bargoed.

WALES.—Nov. 25.—For erection of 20 or more houses near the Pontygwindy Hotel, Caerphilly, for the Pontygwindy Building Club. Mr. H. G. Jones, architect and surveyor, Hengoed.

WALES.—Nov. 24.—For the rebuilding of premises in Dew Street, Haverfordwest, for Messrs. Phillips & Wilkins, ironmongers. Messrs. D. E. Thomas & Son, architects and surveyors, 17 Victoria Place, Haverfordwest.

WALES.—Dec. 9.—For alterations and additions to the Ogmore Constitutional Club, Ogmore Vale. Deposit £1. Mr. L. Vaughan Evans, architect, The Court, Pencoed.

WATFORD.—Nov. 23.—For alterations and additions to the existing grammar school for boys to adapt same for a higher elementary County Council school. Deposit £2 2s. Mr. U. A. Smith, county surveyor, Hatfield.

TENDERS.

EPSOM.

For constructing a light railway on the Horton Estate, for the London County Council.

Foster & Dicksee	£24,824	0	0
Holme & King	22,408	14	1
Pedrette	21,805	16	9
Peerless, Dennis & Co.	19,967	0	0
Brebner	19,308	14	0
Finnegan	19,052	0	5
Perry & Co. (Bow)	18,698	0	0
Wills & Sons	18,443	15	0
Ford	18,175	0	7
Railway and General Engineering Co.	18,174	16	2
Coles	18,128	7	9
Nott	17,992	10	3
Rowlingsons & Co.	17,916	5	3
Davies & Co.	17,702	14	5
C. Wall, Ltd.	17,412	18	9
Muirhead & Co.	17,353	5	9
Kavanagh & Co.	17,336	17	4
Kirk & Randall	17,328	12	10
H. V. Smith & Co.	17,224	17	5
Airds, Ltd.	16,765	13	4
Griffiths & Co.	16,586	11	8
Wilson & Sons	16,335	0	7
Buckley	16,282	2	8
Cochrane & Sons	16,236	15	9
Dick, Kerr & Co.	16,149	5	11
Trentham	16,021	12	6
J. Dickson, St. Albans (*recommended*)	15,844	6	8
Pethick Bros.	14,944	0	0
Murray & Co.	14,207	3	1
Chief Engineer's estimate	16,543	0	0

HULL.

For erection of stables, together with loose boxes, hay loft, mess-room and residence, in Chapman Street Yard, for the Corporation. Mr. J. H. HIRST, city architect, Hull.

Johnson	£3,119	11	4
Greenwood	2,919	8	5
Lison	2,896	0	0
Simpson & Sons	2,800	0	0
Jackson & Son	2,783	0	0
Goates & Sons	2,770	0	0
Levitt	2,737	0	0
Bilton	2,651	18	3
Kettlewell	2,644	0	0
Singleton	2,632	18	9
M. HARPER, Hull (*accepted*)	2,584	18	0

LONDON.

For erection of a boys' school at Strand-on-the-Green, Chiswick, W. Mr. E. WILLIS, F.S.I., architect, Town Hall, Chiswick, W.

Pasterfield & English	£6,844	0	0
Colley & Sons	6,240	0	0
Millman	6,150	0	0
Chessum & Sons	5,997	0	0
Lawrence & Sons	5,935	0	0
A. & B. Hanson	5,790	0	0
Bollom	5,789	0	0
Hammond & Son	5,782	0	0
Lawrence & Son	5,774	0	0
Minter	5,667	0	0
Wilkinson	5,621	0	0
MADDISON, Canning Town (*accepted*)	5,358	0	0

For the proposed conversion of premises, Sutherland Avenue, Maida Vale, into maisonettes. Mr. PERCY L. MARKS, architect, Imperial Buildings, Ludgate Circus.

Harold G. Lancaster & Co.	£287	0	0
Mason & Co.	286	10	0
Campbell & Christmas	232	0	0

CLECKHEATON.

For the various works required in erection of pavilion, boundary walls, laying of green, &c., at Park View. Mr. W. Morton, architect, Cleckheaton. Quantities by architect.

Accepted tenders.

A. Drake & Sons, mason.
W. Isherwood, joiner.
J. W. Taylor, plumber and heating.
N. Parkinson, plasterer and concreter.
H. T. Crowther, painter.
James Smithies, tiler.

SCOTLAND.

For extension of the School of Domestic Science, 352 King Street, Aberdeen, for the Governors of Robert Gordon's Technical College. Messrs. Kelly & Nicol, architects, Aberdeen.

Accepted tenders.

G. Hall, mason	£2,755	0	0
D. Macandrew & Co., carpenters	1,563	0	0
J. Blaikie & Sons, plumbers	1,244	0	0
J. Stephen & Son, plasterers	948	0	0
Pratt & Keith, electrical work	188	15	0
G. Bisset, smith's work	159	10	0
Kynoch & Robertson, painters and glaziers.	157	10	0
J. Scott & Son, asphalters	113	6	8
A. Harper & Sons, slaters	111	0	0

All of Aberdeen.

For works in connection with new epileptic colony, East Muckcroft, Chryston, for the Glasgow Parish Council. Mr. R. Tannock, architect, Parish Chambers, Glasgow.

Heating and ventilating.

Taylor & Fraser	£1,694	0	0
Arnot	1,675	0	0
Combe & Son, Glasgow (*accepted*)	1,635	12	2

Steel and iron works.

McMillan & Co.	£256	5	9
Baird & Sons	244	3	1
J. Mundy, Glasgow (*accepted*)	242	14	1

Tile work.

Decorative Tile and Fireplace Co.	£426	5	3
Kean & Wardrobe	409	9	3
Brown & Sons, Ltd., Paisley (*accepted*)	394	13	0

Painter work.

Edgar	£845	18	0
McKerracher	826	15	8
Lindsay & Son, Glasgow (*accepted*)	795	9	5

WALES.

For erection of 28 dwelling-houses and premises at Ystalyfera and works connected therewith, together with the construction of a road, for the Pontardawe Rural District Council. Mr. J. Morgan, engineer and surveyor, Pontardawe.

W. & J. R. Watson	£7,900	0	0
C. G. Davies	7,760	0	0
Williams	7,560	0	0
John Jones	7,330	0	0
Rees	7,100	0	0
M. Davies	6,987	0	0
Williams	6,832	0	0
Broadfoot	6,797	0	0
Jones Bros.	6,450	0	0
White Bros.	6,440	0	0
Fox	5,968	0	0
Rogers & Sons, Cardiff (*accepted*)	5,544	0	0

WALTHAMSTOW.

For alterations and additions to the Pretoria Avenue Girls' School, for the Walthamstow Education Committee. Mr. H. Prosser, M.S.A., architect to the Committee. Quantities by Mr. G. T. G. Wright, F.S.I., 3 Great Winchester Street, E.C.

Abbot & Charlton	£1,571	0	0
Symes	1,279	0	0
Rowley Bros.	1,250	0	0
Lawrance & Sons	1,187	0	0
Barton	1,181	0	0
R. & E. Evans	1,178	0	0
Monk	1,175	0	0
Brand, Pettit & Co.	1,168	0	0
Coxhead	1,142	0	0
Maddison	1,079	0	0
Hammond & Son.	1,069	0	0
Sands	1,020	0	0
J. & J. Dean, Walthamstow (*accepted*)	960	0	0

LONDON ASSOCIATION OF MASTER DECORATORS.

At the October quarterly meeting of the London Association of Master Decorators, various matters of importance were discussed. The proceedings were opened by an address from the President on his visit to the Convention at Derby.

It was reported that the Water Board had been approached with reference to certain charges made by them for water used for washing down outsides of houses, and as the result of the representations made by the Association, the practice has been modified, so that a charge is only made where the building is being generally repaired and decorated, or where the work is otherwise extensive, and needs absolutely cleanliness.

On the subject of scholarships, it was also reported that the Educational Committee is corresponding with the London County Council, and is at present visiting their technical schools with a view to devising a scheme for the better training of decorators. The question of white lead was also discussed, and it was resolved:—"That as no suitable substitute for white lead has been found its use be continued under reasonable regulations."

HINTS ON ILLUMINATION.

The study of illumination has not only become an exact science in these days of perfection in artificial lighting, but every householder is eagerly reading anything that will give him a greater insight into this most difficult study.

Many a poorly lighted room can be easily remedied by changing the light fixtures or repapering. It was formerly the custom to blame the oil, or the gas, or the electricity if there were dark shadows in the room or if the light failed to dispel the evening darkness. Now it has been proved that these same rooms, be they at home or in the office or the store, can be made almost as light as day with even less candle-power than before, all with a little study and planning.

A wallpaper which will "absorb" light is the greatest enemy to artificial light in the home. An illuminant is powerless to light a room if the colour of the walls absorb most of the rays. The illuminating engineers of one of the leading electrical firms claim that a white wall will reflect 50 per cent. of light, whereas a red wallpaper will reflect only 15 per cent. A light buff or yellow will reflect 45 per cent.; a dark brown about 12½ per cent. A light apple-green wallpaper will reflect 40 per cent.; a dark green will give us 15 per cent. Dark wood trimmings absorb light; white wood reflects it. Velvets and chintzes will also absorb light; so will wallpaper, whatever its colour, but a tinted surface wall reflects the light. Wallpaper in patterns is not only one of the greatest of all known absorbers of light, but it also has a bad effect on nerves and eyes.

The plainer the wallpaper the better for nerves and body, and the smoother the surface the more light it will reflect. In selecting wallpaper the way the room faces must also be taken into consideration. Those rooms facing north and east require lighter coloured papers than do rooms facing south and west.

Care in the selection of tints and wallpaper will not only lead to a better and a cheaper artificial light, but will protect the eyesight and save the nerves and temper. It will enable all to realise to the greatest degree the many advantages of artificial light from the electric current where many are now using some inferior illuminant because of an incorrect impression that electric light is too expensive.

In the year 1781 a German scientist, working in his laboratory by the light from tallow candles, discovered a metal which he found impossible to melt in his crude charcoal furnace. He called the new metal tungsten, from the Swedish "tung" (heavy) and "sten" (stone), because the heavy ores had come from Sweden.

Twenty-five years ago the first successful incandescent electric lamp was produced, after the world's scientists had worked for nearly fifty years to perfect the device. The filaments for these first lamps were made of carbonised strips of bamboo heated white-hot in a vacuum globe by electricity. Subsequently carbonised cotton cellulose was used for the filaments, and it seemed as though the lamp had surely reached perfection.

The filaments of incandescent electric lamps were made of carbon, because no other material could be found which would withstand the intense heat. Every well-known metal was tried, but melted before reaching the required temperatures. Then the inventors began to experiment with the more uncommon metals, and again a German scientist took up the study of tungsten. At first the great trouble was to secure pure tungsten. This difficulty was overcome with the aid of an electric furnace, but the product, in the form of a grey, metallic powder, proved so refractory that it could not be melted into ingots or drawn out into wire. An experimental filament was made by mixing the fine powder with a paste and squirting the mixture through a die, much the same as a spider spins his web. This thread was in turn heated in an electric furnace till the powder was fused into the form of a fine wire. With the melting point of tungsten so much higher than any other known metal, it was possible to heat the filament to greater incandescence, producing more and better light with less waste of current in useless heat.

Then the electrical inventors awoke to the fact that the very substance they were seeking, that which Edison had scoured the world to find, lay under their hand all the time, and tungsten, useless and practically unknown for over a century, came into its own, and began the wonderful task of revolutionising incandescent electric lighting.

The advent of the new tungsten lamp, or metallic filament lamp as it is popularly known, was startling to the users of electricity for lighting purposes. A home that was lighted by electricity for 8*s*. a month could be lighted with the new lamps for 2*s*. 6*d*. Not only that, but the light from the new tungsten lamps proved to be pure white.

When the metallic filament lamp made its appearance it was thought the apex of achievement in incandescent electrical illumination had been reached. Yet the present year has witnessed a still further advance in the manufacture of electric lamps. In the early autumn it was announced that a British firm of electrical engineers had succeeded in rendering tungsten into a ductile form and drawing it into a wire one-thousandth part of an inch in thickness, and were making filaments of electric lamps out of it. Thus has the last, and perhaps the only, defect of tungsten for electric lamp filaments been removed.

The lamp will replace those now in use without special fixtures; in fact, any 16 candle-power incandescent lamp can be replaced with a 32 candle-power tungsten, which will give twice the light and save 20 per cent. of the cost. In size, shape, and general appearance the new lamps are the same as carbon lamps, the difference being in the light-giving filament within the glass bulb.

INSTITUTE OF SANITARY ENGINEERS.

The annual dinner of the Institute of Sanitary Engineers was held at the Holborn Restaurant, W.C., on Wednesday, November 15. Mr. A. J. Martin, M.Inst.C.E., F.G.S., F.R.San.I., the president, occupied the chair. Among those present were the Hon. Sir John McCall, M.D., Lieut.-Colonel Melville, R.A.M.C., Mr. Edwin T. Hall, F.R.I.B.A., Professor Henry Adams, Mr. G. W. Aldwinckle, Mr. H. P. Boulnois, M.Inst.C.E., Professor E. G. Coker, Dr. F. E. Freemantle, Mr. P. M. Fraser, A.R.I.B.A., Mr. Geo. W. Chilvers, Mr. F. W. Mason, Mr. H. S. Couchman, Mr. E. R. Palmer, Mr. A. W. S. Sweetland, Professor A. Bostock Hill, the Mayor of Richmond, and Mr. P. N. Hasluck, the secretary.

After the loyal toasts had been honoured, Mr. H. Percy Boulnois, M.Inst.C.E. (chairman of the Council of the Royal Sanitary Institute), proposed "Our Public Health Authorities." There were, he remarked, some ten thousand health authorities in England and Wales. Consequently they must admit this country was well looked after in that respect.

Alderman R. W. Simpson, J.P. (Mayor of Richmond), said that in Richmond they had cleared away slum areas at a cost of £45,000; and as the population was only 30,000 they felt they had done fairly well. Moreover, whereas fifteen years ago the death-rate stood at 17.9, last year it was reduced to 8 per thousand. They had come also to a very desirable agreement with their neighbours to preserve the amenities of the Thames between Richmond and Twickenham.

Professor A. Bostock Hill, M.Sc., M.D. (President of the Society of Medical Officers of Health), said that the sanitary authorities had done much of which they could be proud. Sanitary science practically dated from 1875. Typical of its enormous developments was the advance in the study of bacteriology. The public were now becoming educated in the science of hygiene, and in that education of the public lay the most important part of the movement. Any further big advance was impossible until the public realised what hygiene could do for them. He looked forward to there being formed another and higher health authority, viz. the health authority of well-informed public opinion, and to the time when health authorities would say "This is preventable, and therefore shall be prevented."

The Hon. Sir John McCall, M.D. (Agent-General for Tasmania), in proposing "The Institute of Sanitary Engineers," argued that it was the duty of the Institute to see that the qualifications of their members were recognised by the people of this country. At present all sorts of people described themselves as sanitary engineers. One of the first aims of the Institute ought to be to see that no man was allowed to call himself a sanitary engineer unless he had some qualification. When a man employed a sanitary engineer he had as much right to protection against incompetence as when he employed a lawyer or a doctor.

Mr. Arthur J. Martin, M.Inst.C.E., F.G.S., F.R.San.I. (the President), heartily agreed that the public ought to be protected from people who were not what they pretended to be. Their Institute had made a good start in its work in the present session: their meetings had reached a very high standard, the attendance was good, and there had been valuable discussions. They had been promised a series of excellent papers by men eminent in different walks of life. He knew that success was a matter of sheer hard work. There was a great post-graduate university for the country at large in the learned societies and in the trade unions, which were making good the defects of early education. Most important of all were societies such as their own which served as schools of citizenship, in which they learnt and practised the duties of loyalty, hard work, discipline, and self-repression, by which alone this country could retain her present high place.

Professor E. G. Coker, M.A., D.Sc. (Past President), proposed "Kindred Institutions," to which Mr. W. Whitaker, B.A., and Mr. A. D. Greatorex, M.Inst.C.E. (President of the Municipal and County Engineers), replied.

Mr. H. T. Wakelam, M.Inst.C.E. (Past President), proposed "The Visitors," and Lieut.-Colonel Melville and Mr. Cuthbert Brown, A.M.Inst.C.E., replied.

The final toast was "The Press."

During the evening a musical programme was gone through.

THE BEER STONE COMPANY, LTD.

Last week the inauguration of the Beer Stone Co., Ltd., was marked by a successful dinner given by the directors at Beer. Mr. J. Ford occupied the chair. For many years the company was known as the Beer Freestone and Lime Company, Ltd., but for various reasons it was decided to drop the lime connection, and a new company has now been formed. The board of directors include Messrs. J. Ford, C. Ford, A. W. Page (of the United Stone Firms), A. Vere Oakley, and Mrs. Ford, with Mr. E. Terrell as secretary and manager. The stone has an excellent history behind it. As one of the speakers remarked, the Church for centuries past had been a great patroness of the products of the quarries, for, go where they would throughout the diocese of Exeter, they would find Beer stone in some part or other of the fabric of the churches. There was a great quantity of Beer stone in Exeter Cathedral, and also in most of the parish churches. The stone had been worked for centuries. It could be traced as far back as the Norman Conquest; while some people said it went back to Roman times, pointing to the trough in the quarries in support of their contention. The use of the stone, however, was not limited to the diocese of Exeter, for it had gone far beyond the bounds of Devon and Dorset. They would find it in Winchester Cathedral, and also in the crypt of St. Stephen's, at Westminster. A sailor once told the speaker that the first thing he saw when he arrived in Australia was a quantity of stone from Beer. So that the reputation of the stone had evidently spread far and wide. The advantages of Beer stone were that it was white and had a beautiful grain. The latter made it easy to carve. The United Stone Firms, Ltd., will act as sole agents for the company.

The Education Committee of the London County Council on Tuesday decided to recommend the appointment of Mr. F. V. Burridge, principal of the Liverpool School of Art, as principal of the Central School of Arts and Crafts, at a salary of £1,200 a year.

An adjourned meeting of the National Builders' Labourers' Union was held on the 27th ult. at the Co-operative Hall, Downing Street, Manchester, to consider a letter received from employers in the trade in reply to a communication sent by the union asking for an increase of wages which would mean a minimum of 6*d*. per hour. Mr. T. O'Garr, President of the Building Trades Federation, presided.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

CHESHIRE.
Chester.—Laundry Instruction Centre.
CORNWALL.
Gyllyngdune.—Art Gallery.
Tywardreath.—House, Beaumont Road. (Particulars from Mr. Gillard, Fountain Terrace, St. Blazey.)
CUMBERLAND.
Hensingham.—(Supplementary to October 6) Church (£5,000).
Legburthwaite.—Council Elementary School.
Penrith.—Shop and banking premises. Mr. J. F. Curwen, F.R.I.B.A. (of Kendal), architect.
DERBYSHIRE.
Derby.—Council "Pear Tree" School: enlargement. Messrs. Naylor & Sale, FF.R.I.B.A., architects.
Loscoe Grange.—Mission church.
Pinxton.—Picture Palace. Mr. J. Tomlinson (of South Normandon), architect.
DORSET.
Weymouth.—Secondary School (£9,000).
DURHAM.
Sunderland.—Workhouse Infirmary: two blocks for consumptives (43 patients). £4,000 to £5,000.
ESSEX.
Billericay.—Three pairs of semi-detached cottages at Great Bursted (£1,175). Mr. H. R. Bird, architect.
Romford.—House, Balgores Lane.
Four houses, Brentwood Road.
House, Reed Pond Walk.
House, stable, and workshop, Heath Park Road.
Shop, Mawney Road.
Eight shops, Hare Hall Lane.
Southend-on-Sea.—Sunday School buildings.
Thundersley.—Church Schools enlargement.
Westcliff-on-Sea.—Pier and buildings (accommodation to seat 3,000). £17,000.
Swimming Bath on Esplanade (£5,000).
HAMPSHIRE.
Bournemouth.—Law Courts.
Science, Art and Technical Schools at Lansdowne.
Southampton.—St. Mary's Church: tower and spire completion.
Winchester.—(Supplementary to October 13) Council School, Danemark Estate. Mr. S. Salter (of Southsea), contractor (£4,494).
KENT.
Ashford.—Head Post Office.
Ramsgate.—Council Schools, St. Lawrence.
LANCASHIRE.
Accrington.—Church. Messrs. Grimshaw & Cunliffe, architects.
Blackburn.—Wesleyan Mission Hall, Darwen Street.
Bolton.—(Supplementary to October 27) St. Margaret's Church. Messrs. Austin & Paley, A.R.I.B.A. (of Lancaster), architects (£9,500). Separate contracts.
Infirmary Nurses' Home (Edward VII. Memorial).
Rishton.—Primitive Methodist Church.
Wigan.—Church at Pemberton (£1,400).
Withington.—Public Baths, Burton Road (£15,000). Mr. H. Price, A.R.I.B.A. (of Manchester), city architect.
LINCOLNSHIRE.
Ashby.—Church.
Lincoln.—St. Andrew's Parish Hall, Sausthorpe and Cross Streets.
MIDDLESEX.
Hampton Court.—Firemen's houses at the Palace.
NORTHAMPTONSHIRE.
Church Brampton.—L. and N.W. Railway Station.
Kettering.—Baptist Church (accommodation for 750). Messrs. Cooper & Williams, architects; Messrs. Lewin & Son, contractors (£3,500).
NORTHUMBERLAND.
Morpeth.—R.C. School enlargement (accommodation for 100 additional children).
NOTTINGHAMSHIRE.
Nottingham.—United Methodist Chapel, Independent Street. (£850.) Mr. W. H. Higginbottom, architect. (Accommodation for 250.)
STAFFORDSHIRE.
Fenton.—Mount Pleasant Church and School.
Kidsgrove.—Primitive Methodist Church, Balls Bank. Messrs. E. Jones & Jackson (of Hanley), architects.
SURREY.
Ash.—Church of England Heathcote Memorial Schools enlargement (extra accommodation for 100 scholars). £1,600.
Chertsey.—Electric Cinematograph Theatre, Guildford Street.
Guildford.—Hippodrome (accommodation for 700).
Haslemere.—Mortuary.
SUSSEX.
Bexhill-on-Sea.—Convalescent Home for London children at Cooden.
Lewes.—Secondary School.
Shoreham.—Grammar School extension.
Worthing.—Girls' Secondary School.
WESTMORLAND.
Ambleside.—Public Library.
WORCESTERSHIRE.
Bromsgrove.—Guild buildings extension.
YORKSHIRE.
Bradford.—Board of Guardians' Children's Home, Thackley. Mr. F. Holland, architect.
Elland.—Church at Southgate.
Harrogate.—House and lodges. Messrs. Empsall & Clarkson (of Bradford), architects.
Cairn Hydropathic addition and alterations. Messrs. Bland & Bown, FF.R.I.B.A., architects.
Rishworth.—Church.
Sheffield.—R.C. Church, Burngreave Road, Pitsmoor.
Whitby.—Two houses and shops, and one house, Sandsend. Mr. T. Dowson, architect.
Two houses, Robin Hood's Bay. Mr. E. Russell, architect.
House, Egton Bridge. Mr. J. Wilson, architect.
House, Sandsend.

WALES.

Caerphilly.—Twenty (or more) houses for the Pontygwindy Building Club. Mr. H. G. Jones (of Hengoed), architect.
Denbigh.—Bacon factory for the Vale of Clwyd (£500).
Ogmore Vale.—Constitutional Club: additions and alterations. Mr. L. V. Evans (of Pencoed), architect.

SCOTLAND.

Ballachulish.—Slaughter-house. Mr. T. Macinnes, contractor (£178 15*s.*).
Broughty Ferry.—(Supplementary to November 10) Board School. Mr. J. A. Langlands (of Dundee), architect.
Canonbie.—Public Hall (accommodation for 400). £800.
Cathcart.—Workshop and offices, Muirend Road.
Dumfries.—Dumfries and Galloway Royal Infirmary: reconstruction.
Fort William.—(Supplementary to September 29) Additions and alterations to Camesky Lodge. Mr. J. G. Falconer, architect. Separate trade contractors.
Giffnock.—Five shops, Kilmarnock Road.
Three double villas, off Kilmarnock Road, between Giffnock and Whitecraigs.
Glasgow.—Double villa, Tinto Road, Hillpark.
St. Margaret's Episcopal Church, Newlands (accommodation for 758). £4,000. Mr. P. M. Chalmers, F.S.A. (of Glasgow), architect.
Three terrace houses, Mossgiel Road, Newlands.
(See also Port Glasgow.)
Inverchaolain.—Board School and teacher's house.
Inverkeithing.—Board School for 100 pupils.
Largs.—Refuse destructor. Mr. Robertson, burgh electrical engineer (£2,500).
Newton-Mearns.—Cottage, Eaglesham Road.
Port Glasgow.—Caledonian Railway Station.
Rutherglen.—Manse and offices.
Thornhill.—Post Office.

IRELAND.

Donnybrook.—Royal Hospital for Incurables: Pavilion for Consumptives. Messrs. Kaye-Parry & Ross (of Dublin), architects.
Waterford.—Free Church School (£2,800).

THE Kingstown Urban District Council are applying for authority to spend £7,625 on the erection of working class lodging houses, and £1,000 on baths and wash-houses.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 23,921. Oct. 15, 1910.—Improvements in Smoke-Abating Devices. F. H. Spicer, of The Grange, Littlemore, Oxford. The object of this invention is to provide an efficient device for entraining or trapping dust, smoke, or condensible vapours, and in particular the smoke and vapours given off from furnaces. The device is intended to be used either in conjunction with or in place of a chimney. When applied to an existing furnace having a draught chimney, the latter is fitted with a damper at a suitable height (say 20 ft.), and a smoke pipe is fitted to the chimney communicating with the interior below the damper. This smoke pipe is downwardly inclined, and has near its upper end a water ejector which is supplied with water under pressure, and which directs this water in streams or spray in a direction parallel or substantially parallel with the axis of the smoke pipe. The vacuum produced by the ejector causes the gases and smoke to be drawn from the chimney into the smoke pipe, where they are entrained in the sprayed water. The smoke pipe terminates in an enlargement or chamber of funnel-shape, from which leads a vertical or substantially vertical downtake, which terminates at or near the surface of the water-level in a reservoir or depositing tank. Fig. 1 shows a vertical section of the apparatus. The ejector in the smoke pipe *a* is designed to produce an annular or conical sheet of water around the smoke pipe by means of an annular spraying nozzle *b*, and within or outside this sheet of water a series of streams by means of the supplementary ring nozzle *c*, or one or more conical jets of sprayed water or jets of spray. The ejector may be supplied with water either from any water mains delivering water at suitable pressure or by means of the pump *d*, which may form part of a closed circuit between the filter-bed e^1 of the depositing tank *e* and the ejector. The stream of water which collects in the smoke pipe towards its lower end is given a helical movement as it enters the funnel-shaped chamber at the end of the smoke pipe, and this movement may conveniently be imparted by means of one or more suitable guide blades *f* on the under side of the lower end of the smoke pipe adapted to deliver the stream of water more or less tangentially to the funnel-shaped chamber *g*, in which the smoke pipe terminates. The chamber *g* at the top of the downtake *h* may also be provided with an auxiliary water ejector g^1, which consists of an annular group of nozzles supplied with water at suitable pressure and directed downwardly coaxial with the downtake. The inner baffles are conical or pyramidal, and closed at the apices and supplementary nozzles, *e.g.* the ring nozzles *k* are provided at different points of the downtake, by means of which streams of water or spray are directed downwardly across the path of the furnace gases and smoke as these are deflected inwardly and outwardly in succession by the outer baffles *i* and the inner baffles *j*. Oct. 25, 1911.

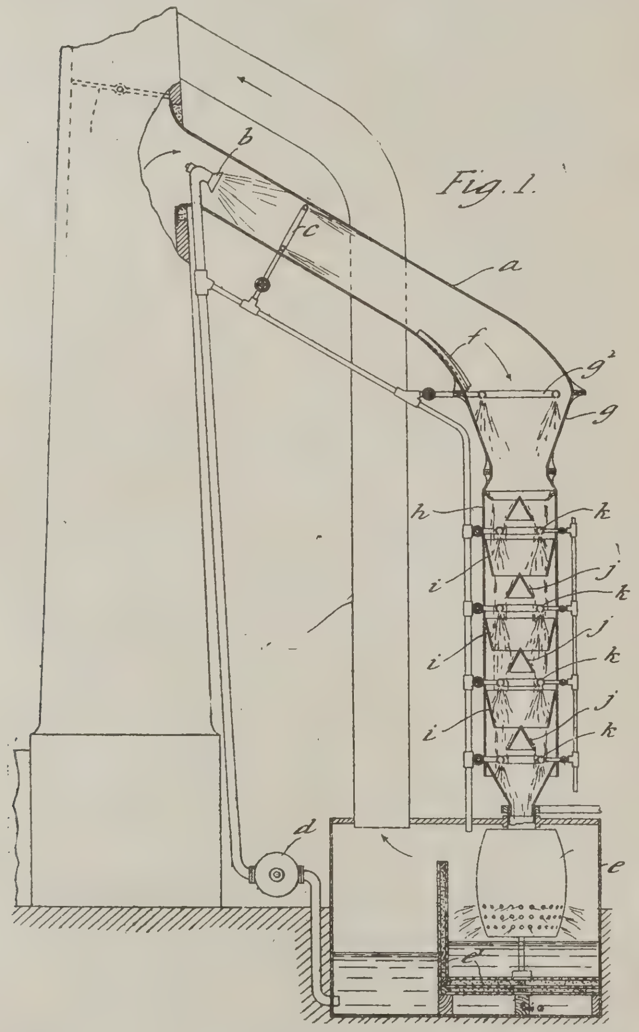


Fig. 1.

No. 24,287. Oct. 19, 1910.—Improvements in Building Cranes. August Wiehe, of Buhren, Westphalia, Germany. —This invention relates to a building crane in which the slueing of the jib is effected automatically. For this purpose the pulley for the hoisting rope is mounted between two chain wheels adapted to be engaged by a chain of the Gall type, which terminates the rope, the spindle of the pulley being turned by such engagement so as to operate a slueing device. Means are provided for switching off the slueing device when the jib has been turned through a suitable angle and also for automatically locking and unlocking the notched wheels. Fig. 1 is an elevation. Fig. 2 a plan of the same. The jib *f* is fitted on its outer end with bearings for a spindle *n*, on which the rope pulley is loosely mounted. The hoisting rope *b* is guided over the pulley and thence along the post *g*, which carries the crane, one end of the rope being connected to the hoisting device at the foot of the post, the other end being fastened to the chain *a*, at the lower end of which hooks or the like are provided for receiving the load. At each side of the pulley sprocket wheels *k* are provided, which are both fast on the

Fig. 1.

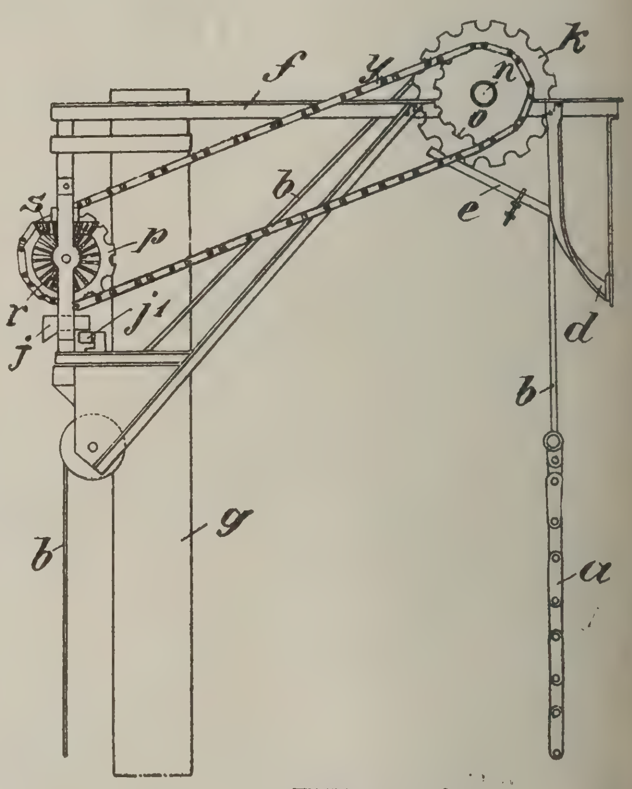
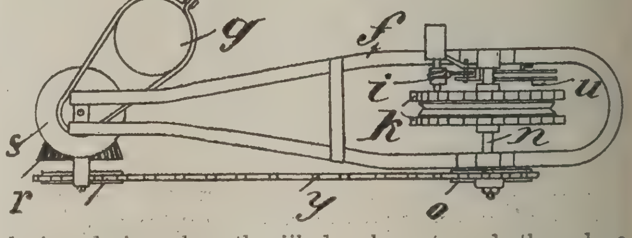


Fig. 2.



spindle *n*, the notches of both wheels being adapted to receive the thickened parts of the cross-members of the chain *a* when the latter has been raised by the rope into engagement with the wheels. Such engagement effects a rotation of the spindle *n*, at one end of which a sprocket wheel *o* is mounted for communicating the rotation to a sprocket wheel *p*. The sprocket wheel *p* is mounted with its shaft in a frame connected to the post *g*, and is fixed to a toothed bevel gear *r*, which meshes with a wheel *s* mounted on a vertical shaft. This shaft is rotatably held in brackets connected to the post *g*, and is adapted to carry the jib. The wheel *s* is slidably feathered on the vertical shaft, and connected by means of a sleeve to a disc *j* provided with a cam face. When the shaft and jib have been turned, owing to the rotation of the gearing, through about 90 deg., the cam face of the disc *j* engages a roller j^1 and rides upon the same so as to put the wheel *s* out of mesh with the wheel *r*, the slueing of the jib being then stopped. Since the chain may be turned by the twisting of the rope *b*, a guide bracket *d* is provided at the outer end of the jib to guide the chain on to the wheels *k*. Before the chain *a* reaches the wheels *k*, the latter are locked by a spindle *i*, which is rotatably and slidably mounted in a bearing. This spindle is fitted with a worm which is in engagement with a stationary pin, not shown, so that a rotation of the same effects a longitudinal displacement of the spindle. The spindle is rotated by a curved rack-bar, which is guided with its rear edge on a grooved roller and adapted to work in the worm. One end of the rack-bar is connected to a double-armed lever *e*, the opposite end of which is disposed so as to be engaged by a projection on the first link of the chain *a* before this link reaches the wheels *k*. Such engagement turns the lever about its pivot, the rack-bar being thereby actuated and the worm of the spindle *i* rotated so as to retract the spindle from its slot in the wheel *k*, which can now be revolved by the continually moving chain *a* for slueing the jib. Oct. 25, 1911.

PATENT SPECIFICATIONS PUBLISHED NOVEMBER 9, 1911.

Selected by Mr. James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

23921. Oct. 15, 1910.—F. H. Spicer, The Grange, Littlemore, Oxford. Improvements in smoke-abating devices.

23947. Oct. 15, 1910.—Hermann Penner, Akazienstr 30, Berlin-Schoneberg. Improvements in electric time alarm apparatus.

23991. Oct. 17, 1910.—Jasper Wetter, 37 Essex Street, Strand. Improvements in sifting appliances suitable for separating mixture of slate and coal.

24102. Oct. 18, 1910.—Edwin Austin, 8 Florence Street, Armley, Leeds. An improved automatic water heater.

24152. Oct. 18, 1910.—A. E. Podmore, 271 Norwood Road, Herne Hill. Improvements in inverted burners for incandescent gas lighting.

24202. Oct. 19, 1910.—Charles Hewitt, 60 Other Road, Redditch, Worcester, and Dale Marshall, 30 Winchcombe Street, Cheltenham. Improvements in or connected with suspension means for pictures.

24287. Oct. 19, 1910.—August Wiehe, Buhren, Westphalia. Improvements in building cranes.

24314. Oct. 20, 1910.—Dixon Provand, Falkland House, Ayr. An improved device for feeding fuel below the fire in grates, stoves, and ranges.

24339. Oct. 20, 1910.—M. H. Hersey, 16 Sotheby Road, Highbury. Improvements in incandescent gas burners.

24458. Oct. 21, 1910.—F. J. Matchette, St. Charles Hotel, Milwaukee. Improvements in or relating to vacuum cleaning apparatus

24570. Oct. 22, 1910.—W. S. Craig, 100 Bolsover Street, Marylebone, and John Gordon, 64 St. James Street, Westmoreland. Improvements in shelves.

24613. Oct. 24, 1910.—Charles Coulter, 18 Hadfield Street, Cornbrook, Manchester. Improvements in vacuum or suction cleaning apparatus.

24669. Oct. 24, 1910.—R. W. McLachan, 3 Morton Villas, Enfield Highway, and A. N. Edwards, 36 Farringdon Street, E.C. Improvements in or relating to balanced or equilibrium valves.

25058. Oct. 28, 1910.—H. R. Doel, Greenhill Farm, Westwood, and W. R. Prentice, Wimborne House, Bristol Road, Ipswich. Improvements in treads for stairs, steps, and the like.

26459. Nov. 15, 1910.—Thomas Attridge, 10 Primrose Street, Darwen, Lancashire. Improvements in or relating to chimneys.

26574. Nov. 16, 1910.—R. G. Nicol, 51 Queens Road, Aberdeen. Improved apparatus for testing and recording automatically the setting of cement or other substances that stiffen or harden.

26593. Nov. 16, 1910.—L. S. Rayner, St. Cuthberts Tower, Caergwrle, N. Wales. Improvements in or connected with safety gripping apparatus for mine or lift cages or the like, and other gripping apparatus.

27058. Nov. 21, 1910.—W. H. Cross, 3 Overton Road, Leicester. Improvements in or relating to ventilators for window sashes and the like.

27679. Nov. 28, 1910.—S. R. Barrett, Heathfield, Valentine Road, King's Heath, Worcester. Improved construction of fuel and backs for gas stoves.

28345. Dec. 6, 1910.—P. G. Abrams, 1310 South Garnet Street, Philadelphia, U.S.A. Improved joining means for furniture, applicable to other purposes.

29006. Dec. 14, 1910.—H. R. Russell, Highgate Works, Highgate Street, Birmingham. Improvements in curtain rod holders.

30021. Dec. 24, 1910.—Thomas Glover, Gothic Works, Angel Road, Edmonton. Improved construction of gas regulating nipple for atmospheric burners.

30080. Dec. 28, 1910.—Thomas White & William Christie, of Thomas White & Sons, Laighpark, Paisley. Improvements in or relating to wood turning or like machines.

918. Jan. 13, 1911.—John Hughes, Islwyn, Acrefair, Ruabon, N. Wales. Bib cock and filter combined.

1310. Jan. 18, 1911.—A. A. Whitton, 71 Victoria Road, Dundee, Forfar. Improvements in automatic apparatus for regulating the supply of water to public urinals, troughs for watering horses, and the like.

1341. Jan. 18, 1911.—A. M. Aubert & J. M. Aubert, of 3 rue de la Ferme, Billancourt (Seine), France. Improvements in apparatus for automatically igniting and extinguishing gas.

1623. Jan. 21, 1911.—A. Gibb, St. Martin's Abbey, Perthshire, and T. G. Menzies, Ferry Craig, North Queensferry, Fifeshire, and Robert Chalmers, Rhufaada, Newport. Improvements relating to the withdrawing of piles, posts, and the like.

2256. Jan. 28, 1911.—Maurice Freud, 20 Alte Jakobstr. Berlin. Improved display frame for shop windows and the like.

2284. Jan. 20, 1911.—Albert Hateley, Excelsior Works, Henstead Street, Birmingham. Improvements in steam cookers.

2447. Jan. 31, 1911.—W. H. Aveyard, Humberville Terrace, Immingham, near Grimsby. An improved angle gauge.

3746. Feb. 14, 1911.—Walter Leonard, 4 Soho Street. Improvements in and relating to electric lamp holders.

5478. March 4, 1911.—Improvements in floors and ceilings. Ferdinand Burchartz, 1 Madison Avenue, N.Z.

6147. April 12, 1911.—Hartmann & Braun, Aktiengesellschaft, 97 Konigstr, Frankfort-on-the-Maine. Improvements in push buttons for electric switches.

7772. May 4, 1911.—Albert Winckler & Charles Winckler, 3 rue de l'Humilite, Lyons. Improved apparatus for automatically delivering measured quantities of reagent for purifying water and for otherwise treating liquids.

10700. May 3, 1911.—Alfred Ridley, 22 Gilmour Street, Ardwick, Manchester. A height-adjusting attachment for telescopic gas fittings.

10933. May 5, 1911.—G. T. Richardson, 18 Brownlow Street, London. Improved apparatus for indicating the direction of the wind.

11117. May 8, 1911.—J. W. Harkom, Melbourne, Richmond, Quebec. Improvements in taps and valves.

11208. May 9, 1911.—Convention application May 26. 1910. Ladislas Penkala, 7 rue Condorcet, Courbevoie. Seine, France. Improvements in processes for moulding plastic materials.

11399. May 11, 1911.—Thomas Beresford, 4 King Edward Street, S.E. An apparatus for heating air for warming rooms.

11630. May 13, 1911.—Convention application May 14, 1910. Auguste Reichert, Hotel d'Angleterre, 13 Quai de Leman, Geneva. Improvements in cooking apparatus.

13946. June 12, 1911.—Convention application Jan. 19, 1911. C. A. P. Turner, 816 Phœnix Building, Minneapolis, U.S. Improvements in and relating to reinforced concrete floor construction.

14159. June 14. 1911.—James Gordon, 81 Knightrider Street, E.C. Improved steam valve.

14222. June 15, 1911.—Herman Mieth, 1232 Hornby Street, Vancouver. British Columbia. Electrically heated vessel.

16110. July 12, 1911.—R. W. Walkey, 52 Upper Richmond Road, East Sheen, S.W. An apparatus for sterilisation of milk, beer, water, or other liquids by means of the ultra violet rays.

17142. July 26, 1911.—Convention application Aug. 2, 1910. C. B. Larzelere, Culebra, Canal Zone, Panama. Improvements in and relating to electro-magnetically operated switches.

17257. July 28, 1911.—Franz Wagner, 31 Rotenditmolderstr, Cassel, Germany. Improvements in devices for lighting and extinguishing gas lamps by variation in the gas pressure.

17842. Aug. 5, 1911.—F. J. J. Gibbons, St. John's Works, Church Lane, Wolverhampton. Improvements in the construction of lockers.

17972. Aug. 8, 1911.—Convention application Aug. 26, 1910. T. F. Fitzsimons, 46 Campbell Street, North Sydney, New South Wales. Venting and discharging valve for vessels containing liquids.

20981. Sept. 22, 1911. W. T. E. Barker, 40 Eddystone Road, Crofton Park, Kent, and J. B. Rowell, 33 Old Queen Street, Westminster, S.W. Improvements in quadrant inlet ventilators.

COMPETITION NEWS.

Blyth.—The Education Committee have selected the designs by Messrs. Fenwicke & Watson, Pearl Buildings, Newcastle, submitted in a limited competition for an elementary school, Princess Louise Road, Blyth, to accommodate 1,200 children.

TRADE NOTES.

Under the direction of Mr. W. McPherson, F.S.I., architect, Drymen, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air inlets, has been applied to Drymen Schools, Drymen, N.B.

Messrs. George Mills & Co., Ltd., of Radcliffe, have just received instructions to fix up a complete installation of the "Titan" patent automatic sprinklers with alarms at a very large mansion in Scotland.

The Brilliant Sign Co., Ltd., 38 Gray's Inn Road, W.C., have just secured an order for plate glass facias, which, when fixed, will be the largest in London. They are for Palmers' Stores, Ltd., King Street, Hammersmith, and will run the entire length of the four shops, and contain brilliant letters, stamped out of stout copper from steel dies, and gilt with 23-carat English gold leaf, and measuring nearly 4 feet deep. The company are also supplying their "Permenart" fired on background, which is a new process recently registered by the company.

Chubb & Son's Lock and Safe Co., Ltd., 128 Queen Victoria Street, E.C., have received an unreserved apology from a Birmingham firm who, as recently appointed Birmingham agents for the sale of padlocks made by a German manufacturer, at the request of their principal, distributed certain illustrated catalogues of padlocks. On several pages the name of "Chubb" or "Chubbs" has been wrongfully applied to locks not of "Chubbs" manufacture. The catalogues are to be recalled, and in due course to be returned to Germany.

The new Workhouse Infirmary, Christchurch, the Cumberland Infirmary, Carlisle, and the Nelson Hospital Wimbledon, are being supplied with Shorland's double-fronted patent Manchester stoves with descending smoke flues; the Eldon Church Hall, County Durham, is being ventilated by means of Shorland's patent exhaust roof ventilators and special inlet ventilators; the Shipcote Hall, Gateshead, is being fitted with Shorland's exhaust roof ventilators, and the Royal Berks Hospital, Reading, is to be warmed with Shorland's double-fronted patent Manchester stoves and patent Manchester grates. All the above equipment is being supplied by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

A number of the leading firms of electricians throughout the country are this week celebrating an "Osram Week." The recent economies in the manufacturing processes, the improved knowledge of the metal Tungsten from which filaments are made, and the widely increased general use of the Osram lamp have enabled the General Electric Co., Ltd., to substantially reduce the prices. Many firms have a special show of the lamps in their shop windows, and they will be retailed at the reduced prices recently announced. When the lamp was introduced a few years ago, it brought about a revolution in electric lighting, for it effected a saving of current of 75 per cent. compared with carbon lamps, and it also gave a vastly better light. Certainly in the early days the lamp was somewhat fragile. But in common with all other metal filament lamps that weakness was considered a necessary condition. The manufacturers, however, were not satisfied on the point, and the Osram lamp has been immensely increased in strength. The company claim that there is no stronger lamp on the market. The various types of Osram lamps have been adopted for street lighting in over 200 towns in Great Britain alone.

VARIETIES.

The Penybont District Council ha e instructed Mr. T. J. Moss-Flower, C.E., of Victoria Street, Westminster, and Bristol, to prepare a scheme of sewerage and sewage disposal for the district of Pencoed, and which will include about nine miles of sewers.

The Southgate Urban District Council intends to ask authority for a town planning scheme, dealing with the whole district of 3,597 acres. The council has already acquired sixty-three acres for a park, and surrounding it is an estate of 240 acres which will be laid out on town planning lines as agreed with the owners as part of the purchase consideration.

Last week a scheme involving an outlay of a quarter of a million to revive the sugar industry at Bristol was considered by the City Council, who agreed to lease land adjoining the Royal Edward Docks at Avonmouth to the Bristol Sugar Company. The scheme provides that the Docks Committee shall build a warehouse costing £30,000, whilst the lessees are to erect a factory costing £70,000.

The Aspatria (Cumberland) Urban District Council have adopted a scheme for dealing with the sewage within their Urban District, which has been prepared by Mr. Fred. J. Rodwell (Messrs. Spinks, Pilling & Rodwell), Leeds. The scheme is estimated to cost, without land and easements, £7,500.

At the last meeting of the Hull Corporation, the Bridges Committee recommended that powers be sought to reconstruct the North Bridge over the River Hull at an estimated cost (exclusive of the purchase of property for approaches, &c.) of £56,000. After some discussion, in which it was urged that the scheme would cost much more than that, the committee's recommendation was adopted.

The Glasgow Town Council last week adopted a minute of the Municipal Buildings Committee which recommended, in connection with the erection of proposed buildings upon the area of ground on the north side of Cochrane Street to the east of John Street, the purchase of four additional properties containing 1,926 square yards at the agreed price of £29,600 (which is equal to an average rate of £15 7*s.* 3*d.* per square yard).

The Southampton Town Council having applied to the Local Government Board for sanction to borrow £4,200 for the purchase of the properties known as Tudor House and King John's Palace, situated in Bugle Street and Western Esplanade respectively, Mr. F. H. Tulloch, M.Inst.C.E., the Inspector, attended at the Municipal Offices last week and held an inquiry. It is proposed to convert these ancient buildings into an antiquarian museum.

A Council meeting of the London Master Builders' Association was held at Koh-i-Noor House, Kingsway, W.C., on the 9th instant. The President (Mr. G. Bird Godson) presided. The report of the Bricklayers' Trade Committee *re* the overtime payments, and other matters of trade interest were considered. The following were elected members of the Association:—(1) Ordinary Member: Mr. A. E. Symes, Stratford, E.; (2) Associate Members: Messrs. John Russell & Co., Ltd., 145 Queen Victoria Street, E.C. Messrs. The Patent Rapid Scaffold Tie Co., Ltd., 124 Victoria Street, Westminster, S.W., were nominated as Associate Members.

The Estate and Property Committee of the Newcastle Corporation on Monday agreed to recommend the City Council to erect plunge and slipper baths at Benwell and Walker, the total outlay not to exceed £20,000. It was also agreed that £1,000 of this sum should be absorbed in erecting cottage baths in the poorest parts of the city. If the latter scheme is adopted, baths will be fixed in houses selected for the purpose, and a trifling charge made for their use.

THE

Architect and Contract Reporter.

FRIDAY, NOVEMBER 24, 1911.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2* P.M. *on Thursdays.*

COMPETITIONS OPEN.

AUSTRALIA.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

BOLTON.—Jan. 6.—The Lancashire and Cheshire Miners' Federation invite architects in independent practice within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1s. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton. N.B.—The time for sending in applications and designs has been extended from Dec. 1 to Jan. 6.

BOLTON.—The King Edward VII. Memorial Fund Committee invite competitive plans from architects now practising as principals within the county borough of Bolton for the King Edward VII. Memorial Nurses' Home proposed to be erected at the Bolton Infirmary. Plan of the site and instructions may be obtained upon payment of £1 1s., which sum will be returned to the competitors provided they shall have sent in *bona fide* plans and particulars and shall have returned all documents, plans, &c. Mr. Samuel Parker, hon. secretary of the Committee, Town Hall, Bolton.

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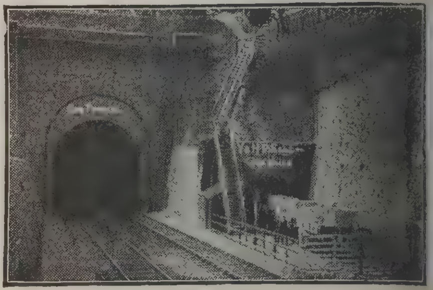

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Bristol.—Messrs. H. J. Packer & Co., Ltd., chocolate manufacturers, invite designs for a pavilion proposed to be erected on the recreation grounds. A premium of £10 will be awarded to the architect whose design is accepted. Apply to Messrs. H. J. Packer & Co., Ltd., Greenbank, Bristol.

Hastings.—Dec. 31.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1*s*. deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

London.—The Port of London Authority invite preliminary sketch designs in competition for new head offices proposed to be erected in Trinity Square, and for the laying out of the remainder of the land as a building site. From the sketches submitted the authors of not more than six designs will be selected to submit designs in a final competition at an honorarium of 200 guineas each, the Authority reserving to themselves the right, on the advice of their assessor, to invite not more than six other architects to send designs in the final competition. The assessor appointed is Sir Aston Webb, R.A. Conditions of the competition, with full particulars of the accommodation required, plan of the site, and photographs of the adjoining buildings, can be obtained on application, on payment of £1 1*s*., which sum will be refunded on receipt of a bona-fide design, or on the return of the particulars within three weeks, to The Secretary, Port of London Authority, 109 Leadenhall Street, E.C.

Rochdale.—Dec. 22.—The Board of Management of the Infirmary invite architects practising in Rochdale prior to January 1, 1911, to submit plans, designs, and estimates for extending the present buildings. Conditions of competition, with other information, together with instructions to architects, can be obtained on application to the secretary. An assessor has been appointed by the committee. Mr. T. Elvyn Kershaw, secretary, Secretary's Office, the Infirmary, Rochdale.

Sofia (Bulgaria).—Dec. 15.—H.M. Minister at Sofia reports that the "Commission Permanente de l'arrondissement de Sofia" invite the submission of designs for a municipal building which it is proposed to erect at that place. Four prizes to the value of 7,000 fr. (£280), 3,000 fr. (£120), 2,000 fr. (£80), and 1,000 fr. (£40) respectively will be awarded. Architects desirous of competing must submit their designs at Sofia by Dec. 15. Copies of the programme, &c., may be obtained on application to the "Commission," as above. A copy of the programme, together with a drawing, may be seen at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

Spennymoor.—Jan. 9.—The Urban District Council invite competitive plans and designs for a public hall, market, and offices, &c. Particulars may be obtained on payment of a deposit of £2 2*s*., which will be returned on receipt of a *bona fide* design. Premiums of £50, £25, and £10 are offered. Mr. F. Badcock, clerk, Council Offices, 3 James Street, Spennymoor. (See advertisement.)

Stafford.—Jan. 6.—The Corporation invite designs for a public library. An assessor has been appointed. Send £1 deposit, which will be returned on receipt of a bona-fide design, or the return of the conditions, &c., within one month of receipt. Mr. William Plant, A.M.Inst.C.E., borough engineer, Borough Hall, Stafford.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Wales.—Nov. 30.—The Cardiff Education Committee invite designs and estimates for a technical institute proposed to be erected in Cathays Park. Mr. J. S. Gibson, architect, will act as assessor. Full particulars will be sent to architects on application, accompanied by a deposit of £2 2*s*., which will be returned to all architects submitting bona-fide designs or who return the conditions within six weeks. Mr. J. Jackson, director of education, Education Offices, City Hall, Cardiff.

CONTRACTS OPEN.

Alnwick.—Nov. 27.—For making alterations to Clayport House, for proposed post office. Forward names by Nov. 27 to Mr. J. G. Burrell, architect and surveyor, Market Place Chambers, Durham.

Audlem.—Nov. 29.—For alterations and additions to the Audlem Grammar School, Cheshire. Deposit £1. Mr. H. Beswick, F.R.I.B.A., county architect, Newgate Street, Chester.

Batley.—Dec. 4.—For the works required in alterations and additions to the elementary schools in Mill Lane. Messrs. W. Hanstock & Son, Branch Road, Batley.

Birstall.—Nov. 30.—For the whole or any of the trades in connection with the proposed extension at the infectious diseases and smallpox hospital in Owler Lane, for the Oakwell Joint Hospital Board. Send names and addresses, with £1 1*s*. deposit, by Nov. 30, to Mr. J. W. Burrows, architect, Birstall, Yorks.

Bradfield.—Nov. 27.—The Guardians of the Bradfield Union invite tenders for certain Sewage disposal works, re-drainage and additions and alterations to the infirmary and workhouse. Deposit £5. Mr. H. Howard Humphreys, 28 Victoria Street, in the City of Westminster.

Cambridge.—Dec. 11.—For erection of schools on ground adjoining Melbourne Place, for the Town Council. Deposit £5. The Borough Engineer and Surveyor, Guildhall, Cambridge.

Ebrington.—Dec. 1.—For erection of a cottage at Ebrington, near Chipping Campden. Mr. A. H. Callaway, architect, Union Chambers, Stratford-on-Avon.

Edinburgh.—Nov. 27.—For steel and glass roofs at workshop buildings, Tynecastle supplementary school, for the Edinburgh School Board. Mr. J. A. Carfrae, architect, 3 Queen Street, Edinburgh.

Edinburgh.—Dec. 7.—The Commissioners of H.M. Works and Public Buildings are prepared to receive tenders for the alteration and extension of the Central Telephone Exchange, Rose Street, Edinburgh. Tenders are required for the whole work, and not for separate trades. Deposit £1 1*s*. H.M. Office of Works, Edinburgh.

Egremont.—Nov. 27.—For erection of a showroom, offices, &c., at their gasworks, for the Urban District Council. Mr. Cowan, surveyor, Town Hall, Egremont, Cumberland.

Epworth.—Dec. 14.—For making alterations and additions at the Council school at Epworth, for the Lindsey County Council Education Committee. Send names and £1 1*s*. deposit by Nov. 27 to Messrs. Scorer & Gamble, architects, Bank Street Chambers, Lincoln.

Glasgow.—Dec. 11.—For the following works required in connection with alterations proposed to be executed at Partick Tramway Depot, viz.:—(1) Digger, mason, and brick works; (2) carpenter and joiner works; (3) slater and plaster works; (4) plumber work; (5) steel work. Mr. Jas. Dalrymple, General Manager, Glasgow.

Haslington.—Dec. 18.—For erection of nine single dwelling-houses and nine sets of farm buildings on the Haslington Estate, near Crewe. Deposit £1. The County Estate Office, 49 Northgate Street, Chester, and the Estate Office, 137 Nantwich Road, Crewe.

Hoole.—Nov. 29.—For erection of a proposed Council school at Hoole, Cheshire. Deposit £2 2*s*. Messrs. J. H. Davies & Sons, architects, 14 Newgate Street, Chester.

Hull.—Nov. 30.—For additions to the girls' school at Hessle. Deposit £1. Mr. J. Bilson, architect, 23 Parliament Street, Hull.

Ireland.—Dec. 12.—For erection of 22 labourers' single cottages, seven double cottages, and fencing plots, for the Kilkeel District Council. Board Room, Kilkeel.

Lancaster.—Dec. 13.—For erection of the girls' grammar school on the High Street estate. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Leeds.—For bricklayers', joiners', plumbers', ironfounders', slaters', and painters' work required in erection of factory, Woodhouse Street, for Messrs. Jackson's Stores, Ltd. Forward names to Messrs. Garside & Pennington, architects, Pontefract and Castleford.

Liverpool.—Nov. 30.—For extensive alterations at the Territorial quarters and drill hall, consisting of Nos. 73, 75, 77 and 79 Shaw Street, for the West Lancashire Association. Deposit £1 1*s*. Mr. J. C. Walker, architect, Westminster Chambers, Crosshall Street, Liverpool.

London.—Nov. 30.—For alterations, &c., at the receiving homes, Hornsey Rise, N., for the Guardians of St. Mary, Islington. Deposit £1. Mr. H. Goodchild, 409 Holloway Road, N.

London.—Nov. 28.—For the supply and fixing of rustic bandstand at Roundwood Park, in the parish of Willesden, for the Willesden District Council. Deposit £1 1*s*. Mr. O. Claude Robson, M.I.C.E., engineer, Public Offices, Dyne Road, Kilburn, N.W.

London.—Nov. 30.—For plastering the walls of two wards and other rooms, and for certain painting works in connection with the same at their infirmary, Highgate Hill, for the Guardians of St. Mary, Islington. Deposit £2. Mr. E. J. Harrison, 9 Gray's Inn Square, W.C.

London.—Dec. 6.—For forming bathroom accommodation in the isolation block at the North-Western Fever Hospital, Lawn Road, Hampstead, for the Metropolitan Asylums Board. Deposit £1. Mr. W. T. Hatch, M.I.C.E., M.I.M.E., engineer-in-chief, the office of the Board, Embankment, E.C.

London.—Dec. 7.—For certain sundry works at their schools, Green Street, Upton Park, E., for the Guardians of St. George-in-the-East. Copies of specification and forms of tender can be obtained on personal application only, on Nov. 27 or 28, between 10 A.M. and 1 P.M., at the offices of Mr. W. Watson, A.R.I.B.A., 53 and 54 Chancery Lane, W.C.

Manchester.—Nov. 29.—For rebuilding part of the boundary wall between the Crumpsall Workhouse and the Prestwich Union Workhouse, for the Manchester Board of Guardians. Deposit 10*s*. 6*d*. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

Manchester.—Dec. 5.—For extensions to the buildings at the tramways depot, Queen's Road, Cheetham. Deposit £1 1*s*. Mr. J. M. McElroy, general manager, Corporation Tramways, 55 Piccadilly, Manchester, or at the Engineer's Office, 55 Piccadilly, Manchester.

Newquay.—Dec. 21.—For erecting a classroom, cloakroom, &c., at the Newquay Council School, Cornwall. Mr. B. C. Andrew, architect to the committee, Biddick's Court, St. Austell.

Penrith.—Dec. 3.—For erection of new shop and bank premises at Penrith (whole or separate trade contracts), for the Bank of Liverpool, Ltd. Mr. J. F. Curwen, F.R.I.B.A., F.S.A., architect and sanitary engineer, 26 Highgate, Kendal.

Portsmouth.—Nov. 28.—For the erection, completion and maintenance for six months of a house as residence for the engineer in charge, on the east side of the Eastney pumping station. Deposit £1 1*s*. The Borough Engineer's Offices, Town Hall, Portsmouth.

Radcliffe.—Nov. 30.—For alterations and additions (including new court-house and cells) to the county police station at Radcliffe, near Bury. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

St. Neots.—Dec. 4.—For alterations and additions to St. Neots Council School, Hunts. Deposit £1 1*s*. Mr. H. Leete, county surveyor, Huntingdon.

Salford.—Nov. 28.—For construction of lodge at entrance of Peel Park. Deposit £1 1*s*. Mr. W. H. Matley, architect, 14 Ridgefield, Manchester.

Sheffield.—Dec. 5.—For the following, for the Sheffield United Gaslight Co.—viz.: (Tender No. 1) supply and erection of a steel roof and floor, forming a purifying house, 167 ft. long by 47 ft. 6 in. wide; (Tender No. 2) supply and erection of five cast-iron purifier boxes, 38 ft. by 32 ft. by 6 ft. 3 in., with luteless steel covers. Mr. J. W. Morrison, M.I.C.E., Commercial Street, Sheffield.

Stanwell (Middlesex).—Dec. 4.—For erection of a boys' home upon their land adjoining the union workhouse in the parish of Stanwell, for the Guardians of Staines Union. Deposit £2 2*s*. Mr. G. W. Manning, architect, London Road, Ashford, Middlesex.

Tinsley.—Dec. 5.—For the whole of the works in connection with additions and alterations to the Church of England day schools, Tinsley, Sheffield. Deposit £1. Mr. G. A. Wilson, architect and surveyor, Hartshead Chambers, Sheffield.

Tredington.—Dec. 2.—For erection of an isolation hospital with outbuildings and for alterations and additions to the existing hospital at Tredington, near Tewkesbury. Deposit £1 1*s*. Mr. J. Villar, F.S.I., M.S.A., architect, 5 Essex Place, Cheltenham.

Wales.—Nov. 27.—For erection of quarry manager's house and office at Penstrowed Quarry, Caersws, for the Montgomery County Council. Deposit £1 1*s*. The County Surveyor, Broad Street, Newtown, or Mr. G. R. D. Harrison, clerk of the County Council, Welshpool.

Wales.—Nov. 28.—For erection of 22 houses near the Mardy Hospital, Merthyr Tydfil, for the Mardy Building Club. Messrs. Johnson & Richards, architects, Merthyr Tydfil.

Wales.—Nov. 29.—For the following works for the Glamorgan County Council—viz.: (1) New school at Oldcastle, Bridgend; (2) new boys' school at Cwmaber, near Caerphilly; (3) alterations to the mixed school at Gilfach Fargoed; (4) fencing at Rhydygwern Council school, near Machen; (5) improvement of playground at the Nanthir Council school, near Blaengarw. The County Council Offices, Westgate Street, Cardiff.

Wales.—Nov. 30.—For erection of an electric theatre at Troedyrhiw (Glam.), for the Troedyrhiw Cinema Co., Ltd. Deposit £1 1*s*. Messrs. Johnson & Richards, architects, Merthyr Tydfil.

Wales.—Nov. 30.—For erection of an electric theatre at Aberdare, for the Aberdare Cinemas, Ltd. Deposit £2 2*s*. Messrs. Johnson & Richards, architects, Merthyr Tydfil.

Wales.—Nov. 30.—For alterations and improvements at the Dowlais Police Station, for the Corporation of Merthyr Tydfil. The Borough Surveyor, Town Hall, Merthyr.

Wales.—Dec. 1.—For proposed church and institute at Pontypridd, for the Glamorgan Mission to the Deaf and Dumb. Deposit £2 2*s*. Mr. E. Rees, architect and surveyor, Alexandra Chambers, Taff Street, Pontypridd.

Wales.—Dec. 4.—For erection of an electric theatre at Pontmorlais, Merthyr Tydfil, for the Merthyr Palace, Ltd. Deposit £2 2*s*. Mr. O. P. Bevan, architect, Express Chambers, Merthyr Tydfil.

Wales.—Dec. 6.—For erection of 12 houses at Ynys-y-Gored, Aberfan (Glam.), for the Grove Building Club, No. 2. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Dec. 9.—For alterations and additions to the Ogmore Constitutional Club, Ogmore Vale. Deposit £1. Mr. L. Vaughan Evans, architect, The Court, Pencoed.

Welwyn.—Nov. 29.—For erection of engineer's cottage at Welwyn, Herts. Mr. H. F. Mence, architect, 11 St. Peter's Street, St. Albans.

York.—Dec. 4.—For alterations and additions to White Cross Lodge, Haxby Road, for converting the premises into a laundry and cookery centre, for the Corporation. Deposit £1 1*s*. Mr. F. W. Spurr, city engineer, Guildhall, York.

Dr. Charles Waldstein, in a letter to the Vice-Chancellor of Cambridge, resigning the Slade Professorship of Fine Art, says:—"The study of Art and Archæology has now arrived at a new phase in your University, which calls for the exertion of the same energies and single-minded efforts which more than thirty years ago was needed for the establishment of Classical Archæology alone. I have come to the conclusion that my personal qualifications to face the arduous tasks now before me do not fit me to do the work as I consider it ought to be done. Meanwhile, funds are urgently required to carry on what we have undertaken with regard to the architectural studies and the wider teaching of Art history at this moment. I therefore beg to offer to the University from my wife and myself (in memory of the late Mr. and Mrs. D. Leinster) the sum of £1,000, which we should like the University to use, either in capital or in interest, as they think fit, to take the first steps in the advancement of these studies. I may add that I have already received the promise of a further sum of £500 for such a purpose, which, I hope, will soon be forthcoming, and I am sanguine enough to hope that further sums will be contributed." Dr. Waldstein, who was born in New York in 1856, was lecturer and reader in classical archæology in the University in 1880 and 1882 respectively, Slade Professor from 1895 to 1901, and again from 1904 till 1911.

The Incorporated Church Building Society held its usual monthly meeting last week at the Society's house, 7 Dean's Yard, Westminster Abbey, S.W. Grants of money were made in aid of the following objects—viz.: Building new churches at Caversham, St. Andrew, Oxford, £50; Copnor, St. Alban, Portsmouth, £120; Plymouth, St. Mary-the-Virgin and St. Mary Magdalene, £160; and St. Budeaux, St. Boniface, Devon, £100; and towards enlarging or otherwise improving the accommodation in the churches at Bethnal Green, St. Simon Zelotes, Middlesex, £10; Chessington, St. Mary-the-Virgin, Surrey, £15; Chillington, St. James, Somerset, £10; Festiniog, St. Michael, Merioneth, £15; Grove Park, St. Augustine, Kent, £50; Penrhiwceiber, St. Winifred, Glam., £30; and Westhorpe, St. Margaret, Suffolk, £15. Grants were also made from the Special Mission Buildings Fund towards building mission churches at Abersoch, St. John, Carnarvon, £25; Bispham, St. Stephen, Lancs., £40; Bridgmary, Elson, Hants, £25; and Pont-y-Gwyddel, St. John-the-Baptist, Denbigh, £10. The sum of £625 was paid towards the repairs of twenty-five churches from trust funds held by the Society. The funds of the Society are practically exhausted by the grants voted at this meeting.

TENDERS.

HINDLEY.

For hospital extensions, Sandy Lane, for the Urban District Council. Mr. O. P. Abbot, surveyor, Hindley.

Byron, Hindley (*accepted*)

IRELAND.

For alterations and additions to Beaulieu House, Drogheda. Mr. S. Wilson Reside, C.E., architect, Newry.

Wylie & Lochhead	£2,395	19	0
J. & W. Stewart	2,358	0	0
Campbell & Son	2,178	0	0
Smullen & Sons	2,150	0	0
J. & R. Thompson, Ltd.	2,100	0	0
Graham	2,046	0	0
H. Henly, Drogheda (*accepted*)	2,029	0	0

LONDON.

For the enlargement and improvement of Old Kent Road schools for physically defective and deaf children (Bermondsey) and of the divisional offices attached thereto, for the London County Council.

	A	B
Leslie & Co.	£8,978	£9,133
Rowley Bros.	8,892	9,634
Kirk & Randall	8,638	9,403
Higgs & Hill	8,484	8,861
Holloway Bros. (London)	8,413	8,566
Downs	8,054	8,179
Holloway	8,034	8,271
Johnson & Co.	8,033	8,179
J. & C. Bowyer	7,776	7,909
Kerridge & Shaw, 265 Strand (*recommended*) *	7,676	7,730*

(A) If the school portion of the premises be vacated; (B) if the school portion of the premises be not vacated. Architect's estimate for tender (A), £8,000.

For the supply, &c., of static transformers and switch-gear, for the new L.C.C. sub-station to be erected at Vauxhall.

Static transformers.

Burnand & Co.	£3,388	10	0
Dick, Kerr & Co.	3,129	10	0
British Thomson-Houston Co.	3,065	0	0
General Electric Co.	2,875	0	0
British Electric Transformer Co.	2,803	5	0
British Westinghouse Electric and Manufacturing Co., Manchester (*recommended*)	2,772	10	0

High- and low-tension switch-gear.

Ferranti, Ltd.	8,079	10	4
Siemens Bros. Dynamo Works	7,449	15	0
The Electric Construction Co.	7,408	2	11
The Electric and Ordnance Accessories Co.	6,950	12	0
Spagnoletti, Ltd.	6,821	0	0
The General Electric Co.	6,498	0	0
A. Reyrolle & Co.	6,399	10	0
Johnson & Phillips	6,193	15	9
The Switchgear Co., Manchester (*recommended*)	5,029	18	6

SCOTLAND.

For works in connection with the erection of a school at Whinny Brae, for the Broughty Ferry School Board. Mr. J. H. Langlands, architect, Dundee.

Accepted tenders.

J. B. Archer, Broughty Ferry, mason	£3,807	14	4
A. Bruce & Sons, Dundee, joiners	1,949	0	0
P. Anderson & Sons, Broughty Ferry, plumbers	729	18	1
A. L. Peacock, Dundee, heating and ventilation	406	3	2
G. Kilgour, plasterer	343	0	0
G. Kilgour, granolithic work	303	18	10
W. Brand & Co., Broughty Ferry, slaters	278	19	0
R. Stewart, Broughty Ferry, glazier	109	18	0

SELBY.

For flooring over swimming bath at the public baths. Mr. B. Gray, F.R.S.Edin., surveyor, Selby.

Myres & Wood	£330	0	0
Ludlow	268	0	0
Higgins	255	0	0
Connell	250	6	10
Reed	244	12	11
Irwin & Co.	240	13	2
Stone	201	13	1
Carr, Selby (*accepted*)	195	7	10

STANWELL.

For erection of the various buildings and other appurtenant works in connection with the isolation hospital for infectious diseases at Stanwell, Middlesex, for the Staines Joint Hospital Committee. Mr. G. W. Manning, L.R.I.B.A., architect, Ashford.

Foster & Dicksee	£12,960	0	0
Fitch & Cox	12,699	0	0
Beauchamp	12,691	14	0
Messom & Sons	12,159	0	0
Martin, Wells & Co.	12,145	0	0
Watson	12,112	0	0
Lawrance & Sons	12,026	0	0
Longley & Co.	12,006	5	0
Coles	11,876	12	0
McCormick & Sons	11,794	0	0
F. & G. Foster	11,758	0	0
Burfoot & Son	11,714	0	0
Jarman & Co.	11,542	10	0
Kearley	11,367	0	0
A. & B. Hanson	11,358	0	0
Love & Co.	11,279	0	0
Lawrence & Son	10,970	0	0
Hawkins & Co.	10,786	14	1
Hunt & Son	10,499	0	0
Gibson & Sons	10,488	13	0
T. Higgs, Northampton (*provisionally accepted*)	10,407	14	8
Moss	10,200	0	0

WALES.

For building a transept with classrooms under, and other works, at the parish church of St. Thomas, Clydach Vale. Mr. J. W. Rodger, architect, Cardiff.

M. Cole & Co.	£1,554	12	9
D. Davies & Sons	1,385	0	0
Williams & James	1,213	1	8
J. B. Mundy	1,202	7	0
W. Cox	1,125	6	1
E. R. Evans Bros.	1,094	14	0
G. Beames, Cardiff (*accepted*)	1,049	14	10

For alterations to the Danygraig Arms, Treforest, for the Rhondda Valley Breweries Co., Ltd.

Mundy	£1,428	15	0
Gibby & Clark	1,425	0	0
Cox & Bardo	1,397	0	0
Hatherley & Co.	1,397	0	0
Williams	1,350	0	0
Seaton	1,310	0	0
Williams & James	1,301	16	4
Owen	1,300	0	0
Phillips & Davies	1,300	0	0
Evans Bros.	1,278	0	0
Evans Jones & Sons	1,272	0	0
Gough Bros.	1,249	0	0
Davies & Sons	1,200	0	0
Niblett & Davies, Cardiff (*accepted*)	1,144	5	0

CORRESPONDENCE.

Marylebone New Municipal Buildings.

Sir,—I have to inform you that the designs forwarded in connection with the competition for the above buildings will be open to view by the public on Friday and Saturday, the 1st and 2nd prox., at the Council's Baths, Marylebone Road, between the hours of 9 a.m. and 5 p.m.—Yours faithfully,

J. Wilson, Town Clerk.

Town Hall, Marylebone Lane; Nov. 23, 1911.

TRADE NOTE.

Cowell's Sanatorium Air-Brick Company, 58 Denmark Road, Southport, have received an order for 150 9-inch by 9-inch Sanatorium air-bricks for the new school at Tottenham, N. Messrs. Rowley Bros. are the contractors.

The Surbiton Urban District Council have referred back a recommendation that the front of the proposed fire station should be in Ewell Road, not Berrylands Road, and that certain architects be invited to submit plans and estimates for the erection of a station at a cost not exceeding £2,500, the accommodation to include four separate tenements or flats for firemen.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

Buckinghamshire.

Farnham Royal.—House, Templewood Lane.

Shop and garage.

Fulmer Common.—Cottage and garage at the Black Firs.

Cambridgeshire.

Cambridge.—Solar Physics Observatory.

Cheshire.

Bickerton.—Primitive Methodist Church, Brown Knowl.

Macclesfield.—Infirmary; Women's Ward.

Nantwich.—Church House, also Church Schools extension. (£1,600.)

Cumberland.

Aspatria.—Dwelling-house and offices, No. 5 Colliery.

Derbyshire.

Ilkeston.—Holy Trinity Church: improvements.

Ripley.—Cottage hospital.

Devon.

Brixham.—Picture Theatre on a portion of the Market. Mr. F. W. Vanstone (of Paignton), architect.

Exmouth.—Alterations and extensions to "Fairfield." Mr. J. Crocker, F.R.I.B.A. (of Exeter), architect.

Plymouth.—32 houses in Kingswood Park Avenue and Frederick, Jephson and Peverell Park Roads.

Stonehouse.—Police cells.

Refuse destructor. Council surveyor.

Dorset.

Poole.—Hospital extension. Mr. S. J. Newman, borough surveyor.

Durham.

Blaydon-on-Tyne.—Church hall. Messrs. Clark & Moscrop, FF.R.I.B.A. (of Darlington), architects.

Essex.

Ilford.—Swimming bath. Council surveyor.

Southend-on-Sea.—Stables, coach-house, &c., for Corporation. Mr. E. J. Elford, borough engineer.

Hampshire.

Park Prewett.—Lunatic Asylum. Messrs. G. T. Hine, F.R.I.B.A. (of London), architect.

Hertfordshire.

Welwyn.—Engineer's cottage. Mr. H. F. Mence (of St. Albans), architect.

Kent.

Margate.—Alexandra Philanthropic Homes: additional blocks.

Lancashire.

Blackley.—St. Christopher's Church (for 800 persons). £6,000.

Blackpool.—Public baths: alterations. Mr. J. S. Brodie, borough engineer.

Lancaster.—Girls' Grammar School, High Street. Mr. H. Littler (of Preston), county architect.

Royal Albert Institution for the feeble-minded: Farm and Industrial Colony extension (accommodation for 40 patients) £12,000.

Leicestershire.

Leicester.—Public Hall, Victoria Park and Regent Road. Mr. E. G. Mawbey, M.Inst.C.E., borough surveyor.

Middlesex.

Hendon.—Parish Church enlargement (£6,000).

Monmouthshire.

Tredegar.—Twelve houses, &c., at Scurfa, Dukestown. Messrs. T. Williams & Son, architects.

Northamptonshire.

Daventry.—Guardians' casual wards: additions and alterations.

Higham Ferrers.—Two houses, High Street.

Northampton.—Destructor works: workmen's baths.

Northumberland.

Barrasford.—Sanatorium: tuberculosis dispensary.

Warkworth.—"Burns' House," Castle Hill: alterations. Mr. L. A. Loades, A.R.I.B.A. (of Morpeth), architect.

Nottinghamshire.

Mansfield Woodhouse.—Wesleyan Chapel and schools: conversion into public offices.

Nottingham.—St. Faith's Church, North Wilford (accommodation for 636 persons). £7,000.

Somerset.

Blagdon (near).—Public Elementary School, Howleigh.

Taunton.—House, French Weir Avenue.

Priory Council School for 445 children.

Weston-super-Mare.—St. Paul's Church (£8,000).

Liberal Club: conversion of existing premises. Mr. G. Lucas, contractor (£412).

Staffordshire.

Leek.—Baths reconstruction. Council surveyor.

Council School.

Surrey.

Cobham.—Congregational Church and Schoolroom.

Epsom.—Infants' Council School, West Hill.

Farnham.—Wesleyan Sunday School.

Guildford.—Music Hall.

Walton.—Church Hall.

Working Men's Club: additions.

Woking.—Boys' school and Technical Institute.

Workmen's dwellings.

Sussex.

Durrington.—Mission (Free) Church and Schoolroom (£800).

Horsham.—Motor Works extension in Brighton Road.

No. 40 East Street: alterations.

Warwickshire.

Coventry.—Public mortuary (£2,150).

Leamington, Royal.—St. Paul's School: rebuilding.

Worcestershire.

Droitwich.—Drill Hall. Mr. P. Smith, architect.

Redditch.—Elementary School, Bridge Street (£6,000 to £7,000).

Yorkshire.

Brompton.—Reading Room.

Darley, North.—Primitive Methodist Church and Sunday Schools, Northwood.

Goole.—St. Thomas R.C. Church, Pasture Road (accommodation for 400).

Hinderwell.—Twelve tenement cottages, Port Mulgrave.

Infectious diseases hospital.

Keighley.—Institute extension (£9,000).

Leeds.—Wesleyan Methodist Church, Roundhay.

Conservative Institute, Harehills (£4,000).

Selby.—Eight municipal houses (£600).

Stainland.—Elementary School.

York.—Thirty working-class dwellings, Fulford Road (£7,000).

Laundry and Cookery Centre: conversion of premises in Haxby Road. Mr. F. W. Spurr, city engineer.

WALES.

Aberdare.—Electric Theatre. Messrs. Johnson & Richards (of Merthyr), architects.

Merthyr.—Council School.

Pontlottyn.—Picture Palace (conversion). Mr. T. Roderick (of Aberdare), architect.

Ruthin.—Grammar School alterations.

SCOTLAND.

Dumbarton.—Poorhouse hospital additions.

Dumfries.—Theatre, High Street (accommodation for 1,000 persons).

Dundee.—Semi-detached villas, Arbroath and Jedburgh Roads.

Cottages, East Haddon Road.

Additions and alterations to house, Norwood Crescent.

Shop, corner of Liff Road and Taylor Street.

Warehouse additions, Cowan Street.

Edinburgh.—Additions to Works, Warriston Road.

Galashiels.—Temperance Hotel, Market Street Bridge.

Gourock.—Sixty-four tenement houses. Messrs. Taggart & Co. (of Glasgow), builders.

Greenock.—Four one-storey cottages, Border Street. Mr. A. Houston, builder.

Board School, Newton Street.

Lerwick.—H.M. Admiralty Signal Station, Ander Hill. Mr. A. D. Douglas, contractor.

May Island (Firth of Forth).—H.M. Admiralty Signal Station. Messrs. J. Jackson & Son (of Burntisland), contractors.

Oban.—Kippering Houses for the Callander and Oban Railway Company.

Wick.—Public slaughterhouse, Ackergill Street.

IRELAND.

Ballywalter.—Rectory. Mr. W. J. Fennell, F.R.I.B.A. (of Belfast), architect.

Dublin.—The Four Courts: new block for the Registry of Titles.

University College: new buildings.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 459. Jan. 7, 1911.—Improvements in the Regulation of the Air Supply to Rotary Kilns.—William Gilbert, of 47 Victoria Street, Westminster, S.W.—When using rotary kilns for the manufacture of Portland cement, the fuel in general use is powdered coal, which is blown into the firing end of the kiln by a high-pressure fan, or similar apparatus. The delivery pipe from the fan (sometimes termed the coal-feed pipe) is fitted with an internal nozzle from which the air issues at a velocity due to a water-gauge of from 6 inches to 10 inches. The powdered coal is fed from a hopper by a screw conveyor or similar device, and is delivered immediately in front of the nozzle. It is picked up by the blast and carried along the coal-feed pipe into the kiln. It is customary to supply only a proportion of the air by means of the high-pressure fan which blows in the coal; the remaining air enters the kiln by the shoot leading from the clinker-cooler, or it is blown into the kiln by a low-pressure fan, by means of a pipe, which may or may not envelope the coal-feed pipe. This invention has for its object the provision of improved means whereby the correct amount of air necessary to support combustion is supplied to the kiln whatever the rate of coal feed may be, or, if required, the air supply may be more or less than the theoretical amount required for any coal feed, and according to a predetermined ratio. The high-pressure coal-firing fan is provided with a nozzle suited to pass into the kiln a small proportion of the maximum air supply, together with the powdered coal, and the remainder of the air is supplied by a separate fan at a lower pressure and not exceeding 3 inches water gauge or thereabouts. Both fans run at a constant speed. In the suction or in the delivery pipe of the low-pressure fan a damper or slide is inserted in such a manner that the opening or closing of the damper will regulate the amount of air delivered by the low-pressure fan. Referring to fig. 1, *a* is the high-pressure coal-firing fan, which delivers air through the nozzle *b*. Powdered coal is taken from the hopper *c* by the screw conveyer *d* and delivered in front of the nozzle *b*. The mixture of air and coal is blown along the coal-firing pipe *e*, and into the rotary kiln *f*. The remainder of the air necessary for combustion, and which is usually hot air drawn from the clinker-cooler, is supplied by the low-pressure fan *g*, through the delivery trunk *h* and regulating damper or dampers *i i*, the delivery trunk in this instance being arranged to envelope the coal-firing pipe *e* at, or near, its entrance to the front hood *j* of the kiln. The speed of rotation of the coal conveyor *d* may be regulated as desired by the medium of the speed cones *k* and *l*, which are connected by an endless belt *x*. The cone *k* is driven at constant speed from a line shaft, and the conveyor *d* is rotated by a spur gearing and a belt from a pulley mounted on the shaft of the variable speed cone *l*, as indicated. The belt *x* connecting the speed cones *k* and *l* can be moved along each cone by a fork mounted on guides, and suitably arranged to be traversed parallel to the axis of the speed cones by the rotation of the square-threaded screw *m*. The attendant, watching the process of burning the raw materials to a cement clinker through the portholes in the front hood *j* of the kiln, alters the rate of coal feed as required by operating the chain *n*. The chain *n* is geared to the chain n^1, and the movement of the latter chain rotates the screw *m* by means of a chain-wheel secured to the screw shaft. A second chain-wheel, also secured to the shaft of the screw *m*, adjusts the opening between the regulating dampers *i i* by means of the chain *o* and the chain-wheel *p*. The regulating dampers *i i* and the operating gear are shown to an enlarged scale in fig. 2. The damper is formed of two rectangular plates *i i* hinged at one end and connected by a suitable link, so that the opening between the two plates is always symmetrical with regard to the centre of the casing or trunking *h* in which the dampers are placed. The chain-wheel *p* is mounted on the same shaft as the bevel wheel and drives the worm by means of the bevel-wheel. The worm-wheel is keyed to the same shaft as the cam *q*, and the latter operates the damper plates through the link *v*; a balance-weight serves to keep the roller under the cam *q* in contact with it. The cam *q* is shaped so that the opening between the damper plates *i i* at any instant is suitable to pass the required amount of air for the existing coal feed, allowance having been made for the constant supply entering the kiln from the nozzle *b* and through the shoot *u* leading to the clinker-cooler, the latter quantity being in general very small. November 1.

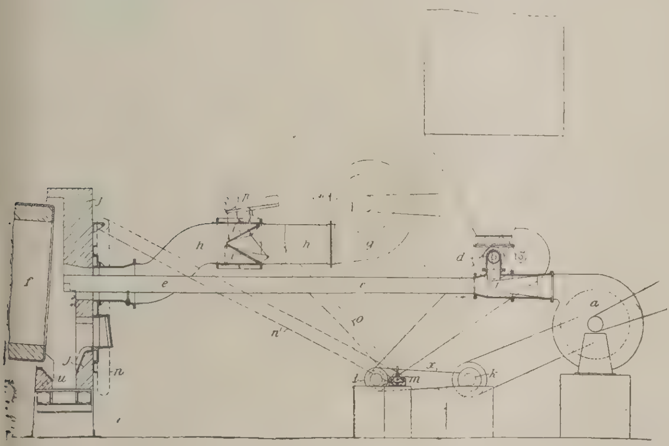


FIG. 1.

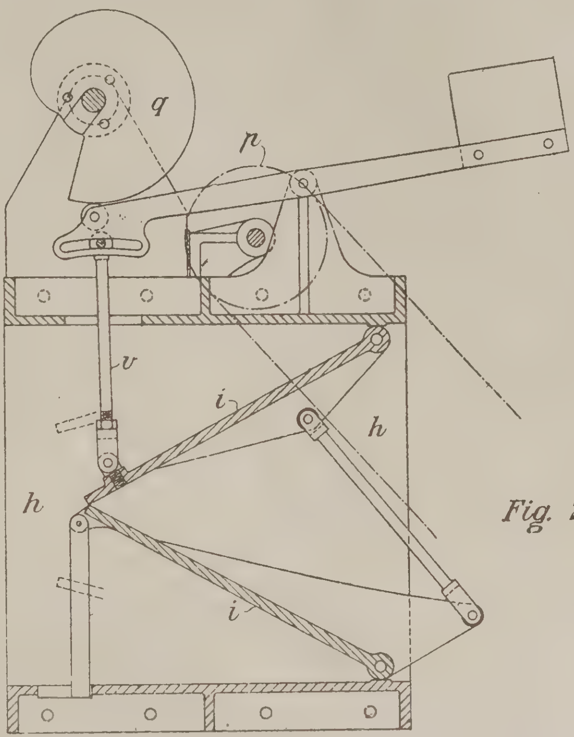
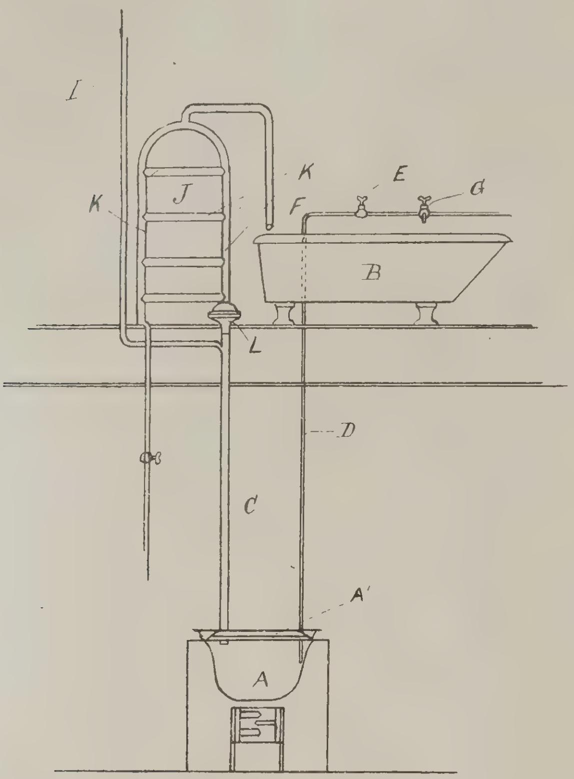


Fig. 2.

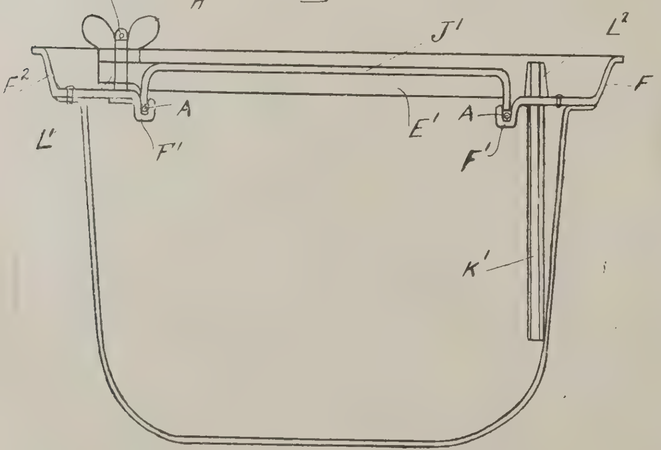
No. 13,053. Nov. 30, 1910.—Improvements in and relating to the Supply of Hot Water for Domestic Purposes. W. W. Smith, 14 Upper Stone Street, Maidstone.—This invention has reference to the supply of hot water for domestic purposes, and it has for its objects to provide means whereby hot water intended for use for domestic purposes may be obtained in a simple and more efficient manner. It is designed more particularly to enable hot water from a copper to be delivered to a bath, hot-closet heater, or other receptacle, on floors above, the water from the copper being forced to any desired height by the ordinary pressure of cold water from the main or other source of supply. Fig. 1 is a general arrangement wherein the heated water is led from the copper through a hot-closet heater to a bath. The heater consists of a number of tubular shelves, uprights, hangers, or rails, through which the heated water circulates on its way to the bath, and it may be of any convenient outline or shape. Fig. 2 is a cross-section of a form of improved lid wherein the lid is secured in its closed position within an annular pan-shaped upper framework by thumbscrews and is free to be removed from the copper when not required. *a* is a furnace pan or copper of ordinary construction, and a^1 the improved lid fitted thereto to make the water-tight joint; *b* is a bath, *c* a pipe to convey hot water from the copper *a* through the heater *j* to the bath. *d* is a pipe from the main or other supply, through which, when the stop-cock *e* is open, the cold water therefrom forces the water from the copper *a* up the pipe *c*. The cock *e* is a cold-water cock, but should be labelled "hot," as it is only opened when the lid a^1 is to be closed, in order that hot water may be conveyed to the bath through pipe *f*, which is always open, in order that a safety valve will not be required. *g* is a cold-water bib-cock for the bath; *i* is a pipe to carry off steam when the copper *a* is being used for ordinary purposes with the lid

Fig 1



a^1 in the open position; *k k* are tubular shelves and uprights, and *l* a valve of any suitable type to prevent water in the heater *j* running back into the copper *a* when the pressure in the pipe *c* has been taken off. In fig. 2 j^1 is the lid, provided with webs e^1 to strengthen same. Its outer rim fits into a channel f^1 in the top frame work f^2 fitted to the copper, which framework is bolted or rivetted to the furnace pan, the rim of the lid resting upon an annular strip or layer of rubber *a*, or other suitable resilient substance, that will make a watertight joint. *h* represents the thumb-screws on the screw pins *i* secured to the framework f^2, around which pins the slotted lugs l^1 on the lid j^1 take, whereby the lid is held down against the pressure of the water within the copper. l^2 is a screw socket to receive the cold-water supply pipe, and k^1 a length of pipe to convey the cold water towards the bottom of the furnace pan. The framework, f^2, which is of an annular pan-shape, having an open centre, serves to receive and hold the back-flow of the water from the superposed pipes whenever the lid of the copper is removed. November 1.

Fig 2



PATENT SPECIFICATIONS PUBLISHED NOVEMBER 16, 1911.

Selected by Mr. James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

13053. Nov. 30, 1910.—W. W. Smith, 14 Upper Stone Street, Maidstone. Improvements in or relating to the supply of hot water for domestic purposes.

14661. Jan. 17, 1910.—Conrad Dressler, 2a Wetherby Terrace, Earl's Court, S.W. Improvements in or relating to power presses for the manufacture of tiles and the like.

24294. Oct. 20, 1910.—O. R. Williams and John Stevenson, The Railway Appliance Works, Cathcart, Glasgow. Improvements in electric switch contact devices for lowering gears for arc lamps.

24328. Oct. 20, 1910.—W. M. Llewellin, 15 King Square, Bristol. Improvements in workmen's time recorders and the like.

24493. Oct. 21, 1910.—David Anderson, 18 Farringdon Road, E.C. Improvements in or relating to gas lamps.

24508. Oct. 21, 1910.—Convention application Oct. 22, 1909. The Hiltruper Terrazzo und Cementwaarenwerke Akt.-Ges., 8 Windthorstrasse, Munster, Westphalia. Improvements in lining shafts with concrete.

24573. Oct. 22, 1910.—D. M. Nesbit, Ashwell Lodge, Barkley Lane, Leicester. Improvements in or relating to water-heaters and the applications thereof.

24574. Oct. 22, 1910.—A. Klarwasser, Pfalzerstrasse 21, Cologne. An improved device for bending pipes and profile pieces.

24609. Oct. 24, 1910.—H. Askew, "Stubbin," Rawmarsh, Rotherham. Improvements in or relating to furnaces of steam-boilers and other furnaces.

24617. Oct. 24, 1910.—B. W. Tolhurst, 20 Royal Terrace, Southend-on-Sea, and C. R. Stevens, 37 Canterbury Road, Kilburn, N.W. Improved combination radiator and hot-water boiler.

24704. Oct. 24, 1910.—J. Hanna and T. F. Shillington, both of Musgrave & Co., Ltd., St. Ann's Iron Works, Belfast. Improvements in and relating to the separation of dust and similar impurities from, and the humidification of, air and other gases.

24853. Oct. 26, 1910.—John Armstrong, 5 Victoria Street, S.W. Improvements in the construction of furnaces, ovens, chimneys, and the like.

24880. Oct. 26, 1910.—Convention application Dec. 20, 1909. A. E. E. Clifton and W. W. Preston, Connersville, Fayette, Indiana, U.S.A. Improvements in vacuum cleaners.

25142. Oct. 29, 1910.—J. H. Lowry, Ranelagh Road, Liverpool. Improvements in the manufacture of cement or plaster and structures thereof.

25195. Oct. 29, 1910.—E. J. & W. R. Hume, Flinders Street, Adelaide. Concrete pipes, columns, girders, blocks, and other structural material, and method of and means for manufacturing the same.

26387. Nov. 14, 1910.—W. J. Lineham, 21 Newstead Road, Lee, S.E. Means for supporting picture frames and similar hanging objects.

26461. Nov. 15, 1910.—Arthur Jones, Sichfield Street, Fazeley, Tamworth, and James Lupane, Fazeley, Tamworth. A device for removing deposits of carbon or other obstruction in and from the gas holes of acetylene burners, incandescent burners, by-passes, and the like.

27163. Nov. 22, 1910.—Karl Ritzmann, Sternstrasse 66, Breslau, and Dr. M. Wolfke, Herzogstrasse 6, Breslau, and Franz Lissy, Friedrichstrasse 32, Kattowitz, Germany. Improvements in electric vapour lamps.

27807. Nov. 30, 1910.—Ralph Pennington, 93 Greenfield Road, St. Helens. Improvements in cements.

28004. Dec. 2, 1910.—William Green, 206 Peel Mount, Burnley Road, Accrington, and the Huncoat Plastic Brick and Terra Cotta Co., Ltd., Huncoat, near Accrington. Improvements in or appertaining to Gay-Lussac and Glover or other towers used in the manufacture of sulphuric acid and the like towers where gases come in contact with liquids.

28183. Dec. 3, 1910.—J. W. White, Strathdene, Woolton, Lancs. Improvements relating to self-tipping carriers for aerial ropeways and runways, tramways, and the like.

28736. Dec. 10, 1910.—Geo. Crossley, of Mather and Platt, Park Works, Manchester. Improvements in and relating to fireproof doors and the like.

28974. Dec. 13, 1910.—Société L'Optique Commerciale, 7 rue du Malte, Paris. An improved reflector lamp or lantern.

29853. Dec. 23, 1910.—Walter Allott, 18 Swinbourne Grove, Withington, Manchester. Improvements in clothes and like pegs, curtain-rod, supporting bracket, and other wall-fitments.

29915. Dec. 23, 1910.—Convention application Feb. 25, 1910. Auguste Reichert, Hotel d'Angleterre, 13 Quai du Leman, Geneva. Improvements in and relating to cooking apparatus.

30365. Dec. 31, 1910.—John Shanks, Tubal Works, Barrhead, Renfrew. Improvements in and relating to valve fittings for bidets.

30368. Dec. 31, 1910.—Hans Bachl, 81 Kaiserstrasse, Magdeburg. Briquette-making press with revolving table.

317. Jan. 11, 1911.—William Sugg & Co., Ltd., and W. S. Wright, Vincent Works, Regency Street, Westminster. Improvements relating to slow-combustion stoves.

459. Jan. 7, 1911.—William Gilbert, 47 Victoria Street, Westminster. Improvements in regulation of the air-supply to rotary kilns.

1496. Jan. 20, 1911.—W. E. Hipkins, of W. & T. Avery, Ltd., Soho Foundry, Birmingham. Improvements in automatic weighing-apparatus for weighing granular or like material.

1997. Jan. 26, 1911.—Ed. Beetlestone, The Glass Works, West Smethwick. Improvements relating to glass rolling.

2574. Feb. 1, 1911.—W. R. G. Whiting, M.A., 2 Larkspur Terrace, Newcastle-on-Tyne. Strain indicator for use on any structure subjected to stress or in connection with testing and like machines.

2776. Feb. 3, 1911.—C. H. Kruger, Ebor Garage, John Gate, Bower Street, Bradford, and C. W. Collinson, Kirklands Cottage, Baildon, Bradford. Improvements in and relating to lamps and reflectors for same.

3083. Feb. 7, 1911.—F. V. Detwiler, 1107 Monadnock Building, Chicago. Improvements in gas and like cooking stoves.

3530. Feb. 11, 1911.—P. R. Davison, 42 Cobham Street, Gravesend. Improvements in or relating to cranes.

3726. Feb. 14, 1911.—Percy Elford, 115 Woodstock Road, Oxford, and James Wilson, 85 Islip Road, Oxford. Improvements in or relating to desk seats and other seats of a like character.

4097. Feb. 17, 1911.—John Gittins, 4 Park Road, Tan-y-Fron, Wrexham, and J. H. Roberts, 28 Park Road, Tan-y-Fron, Wrexham. Improvements relating to clips for haulage ropes and other like purposes.

4569. Feb. 23, 1911.—W. A. Wilson, Carlton Works, Armley, Leeds. Improvements in and relating to gas-stove and like burners.

4767. Feb. 25, 1911.—G. W. Bousfield, Quarry Hill Close, Sandal, near Wakefield. Improvements in or relating to machine for pulverising stone, coal, and other materials.

5516. March 6, 1911.—Walter Wallis, 15 Osborne Terrace, Springfield, Sale. Improvements in devices for raising and lowering curtain poles.

5968. March 9, 1911.—Albert Scheidegger, 7 Baumgartenweg, Basel. Protecting cover for incandescent inverted mantles.

6297. March 13, 1911.—Adelbert Sauer, 5115 Rosetta Street, Pittsburg, U.S.A. Improvements relating to steam superheaters and feed-water heaters.

7434. March 24, 1911.—Convention application April 2, 1910. Hermann Nilolaus, 59 Ungargasse, Vienna 111, Austria. Improvements in sliding windows.

7612. March 27, 1911.—Convention application June 1, 1910. Max Wachsmuth, 7 Hartelstrasse, Leipzig. Improvements in vapour lamps.

7640. March 27, 1911.—Heinrich Zschocke, Fabrikstrasse, Kaiserslautern, Germany. Improvements in and relating to filters for separating suspended impurities from gas.

7975. March 30, 1911.—T. G. Rhodes and R. Gaunt, both of the Valveless Syphon Co., Kirkstall, near Leeds. Improvements in or relating to siphonic flushing-apparatus.

8468. April 5, 1911.—Konstantine Keonman, 28 Rue Wazon, Liege. Process for the preservation of wood.

8744. Oct. 20, 1911.—J. W. Wall, 61 Oriel Road, Bootle, Liverpool. Improvements in hinges.

9700. April 21, 1911.—A. M. Kennard, The Falkirk Iron Co., Falkirk, and D. Campbell, 17 James Street, Falkirk. Improvements in cooking ranges.

9719. April 21, 1911.—Convention application April 21, 1910. Otto Schaller, Berlinstrasse 24, Sudende, near Berlin. Electric incandescent lamp.

9806. April 22, 1911.—E. & N. R. Booth, 9 Heath Villas, Halifax. Improved reflectors for incandescent electric lamps.

9919. April 24, 1911.—Convention application July 18, 1910. Egard Frankignoul, 62 Rue Du St. Esprit, Liege. Improved means for constructing pile foundations.

10413. April 29, 1911.—James Wilson, 81 The Grove, Wandsworth. Improvements in and relating to apparatus for filtering liquids.

10861. May 4, 1911.—Harry Simmons, Junr., 7 Lucerne Road, Highbury Park, N. Improved window-fastener.

11199. May 9, 1911.—Convention application Oct. 12, 1910. E. A. Donat, Wanamakers, Lehigh, Pennsylvania, U.S.A. Improvements in and relating to sash-locks.

11590. May 13, 1911.—E. M. Ackerman, 610 Sixth Avenue, New Westminster, British Columbia, Canada. Draught-excluder.

12625. May 25, 1911.—Louis Rossi, Veytaux, Waadt, Switzerland. Improvements in and relating to compasses for drawing purposes.

13663. June 8, 1911.—E. D. Farr, "Glanrhyd," 32 Maeshyfryd Road, Holyhead. Combined protractor and parallel ruler.

13773. June 9, 1911.—H. Christophery, 12 Obere Muhle, Isellohn, Germany. Improvements in or relating to the manufacture of handles for windows, doors, and the like.

14209. June 15, 1911.—Carl Drewes, 24a Neubert Strasse, Hamburg. Improvements in or relating to the decoration of surfaces with mosaic-like effects.

14767. June 21, 1911.—E. A. Kunze, Aussig, Bohemia. Improvements in gas generators.

14879. Oct. 24, 1911.—W. H. Barker, Junr., "Berea," King Street, Fenton, Stoke-on-Trent. Improvements in conveyors or screens for coal and other minerals or materials.

15185. June 29, 1911.—Convention application July 5, 1910. J. H. Carlstedt, 34 Nygatan, Gefle, Sweden. Improvements in gravity locks.

16234. July 13, 1911.—Convention application July 15, 1910. E. E. F. Creighton, Schenectady, New York, U.S.A. Improvements in or relating to protective devices of the type known as lightning arresters.

17226. July 27, 1911.—F. Ehlers, Luneburger, Alle 28, Celle, and A. Rommel, Garssen, near Celle, Germany. An improved artificial stone composition for building and like purposes.

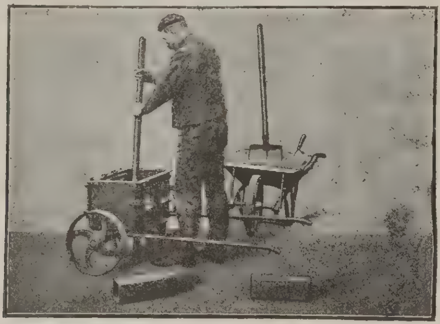
17400. July 31, 1911.—Convention application Dec. 12, 1910. F. S. Howard, Lombard, Dupage, Illinois, U.S.A. Improvements in or relating to roof-joints.

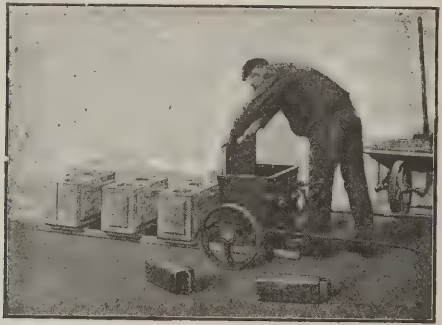
THE NEW PATENTED HOLLOW BLOCK MACHINE "PHŒNIX."

Great interest is now widely felt on the subject of employing concrete hollow blocks. This method of building undoubtedly presents many advantages. The main advantage is the cheapness and the short time in which the works can be erected. Concrete hollow blocks can be employed not only for simple cottages, dwelling-houses for workmen, &c., but also for modern town buildings and business premises. In the United States this manner of building has spread enormously. Experienced and unexperienced people, however, have constructed hollow block machines of all shapes and designs, and makers of other countries have used these machines as samples, often without bothering whether they answer the latest requirements. A German factory, the well-known machine works, "Leipziger Cementindustrie" (Dr. Gaspary & Co.) at Markrahstaedt, near Leipzig, who are specialists in the manufacture of machines for the utilisation of sand, make herein a noteworthy exception. They have

devoted themselves to the construction of hollow block machines, and now have the satisfaction to have placed on the market a new machine, called the "Phœnix," which they claim to be far superior to any other hitherto constructed.

Formerly people used to manufacture hollow blocks either by stamping them on tables at a convenient height, so as to allow of easily carrying them away on their supports, and placing them on the floor, or they were stamped directly on the floor, in order to avoid their transport. With the first mode of manufacture nearly always two workmen were necessary for removing the blocks, each being equal to twelve bricks and weighing about 50 kilos, and thus too heavy to be carried away by one man. Furthermore, there was the danger of shaking and breaking the block as the supports bent, in consequence of the relatively heavy load resting upon them. The disadvantage of the other way of working is that the stamping has to be done in a bent position, and thus unnecessarily tiring the workman. The hollow block machine "Phœnix" removes all these drawbacks with one stroke. Its ingenious construction (which is patented) allows of stamping the blocks in a convenient position, and placing them directly on the ground by simply tilting the machine. The machine is portable and provided with wheels. The weight of the stamped block does not affect the workman. When the block has been placed on the floor, the machine is pulled back on its wheels. While with the old machine blocks in the size of 12 bricks could be made only, the "Phœnix" allows of making them in the size of 16 bricks without necessitating more than one workman, and this one workman is able to obtain an output by one-third larger than reached with machines of the old type. The inventors have also foreseen the possibility of manufacturing all other kinds of blocks required by the building trade, viz., half blocks, cut in the length and in the breadth, corner blocks as well as plain and figured ones, &c., &c.





Everybody interested in this industry should write for the special prospectus, No. 97, of the said firm, which is sent free of charge, explanatory of the new "Phœnix" machine for manufacturing hollow concrete blocks.

VARIETIES.

The Senate of Belfast University are going to apply to the Treasury for a sum of £25,000 to be spent during the ensuing financial year on new buildings.

Mr. Joseph Graham, consulting engineer, Carlisle, has prepared a scheme of water supply for fifteen parishes in the Carlisle Rural area. The cost is estimated at £57,500.

The Esher and Dittons Urban Council have approved a plan of proposed additions at the sewage works, the estimated cost being £6,094.

Mr. C. Orlando Law, M.S.A., L.R.I.B.A., architect and surveyor, has changed his address from "Dacre House," Arundel Street, W.C., to 15 Rossetti Mansions, Cheyne Gardens, S.W.

The Goole Urban District Council have received the approval of the Local Government Board to their proposed sewerage scheme. The scheme, which it is estimated will cost £35,000, is to be carried out under the supervision of Mr. G. Midgeley Taylor, engineer, of Westminster, and it is proposed to start next spring.

In the list of awards relating to the Gidea Park Town Planning and Modern House and Cottage Exhibition which was given in our issue of Nov. 10, the Coalbrookdale Company exhibit, to which the silver medal was awarded, was described as the "B.K." This should have been the "K.B." Kitchen Range (Gibson's Patent).

The Humber Conservancy Board have under consideration a scheme presented by the conservator and the engineer (Mr. A. F. Butterfield) for improving the river at a total estimated cost of £327,000. Of this amount over £231,000 would be spent on five half-tide retaining walls.

The memorial to be placed in Lincoln Cathedral in memory of the late Bishop King will take the form of a sitting figure in bronze. Sir William Richmond, R.A., is to be entrusted with the work. The statue will be placed in the morning chapel.

Montgomery County Council have decided to acquire Forden Workhouse for the purposes of a county asylum at a cost of £7,000, and to convert it at a cost, exclusive of furniture and equipment, architect's commission, &c., of £31,000. The alternative scheme, to build an entirely new asylum, costing £82,000, was defeated by twenty-five votes to fourteen.

The *Edinburgh Gazette* last week contained an intimation of the intention of the Commissioners of His Majesty's Works and Public Buildings to promote an Act of Parliament to acquire, by compulsory purchase or otherwise, certain houses, lands, and buildings on the north-west side of Lothian Street and the east side of Brighton Street for the purpose of extending the Royal Scottish Museum. The houses and lands in question lie behind the present museum buildings.

An important dock and river extension scheme has been adopted by the Blyth Harbour Commissioners. To carry out the enterprise a bill will be promoted in Parliament next session conferring powers to borrow £800,000. The scheme has been approved by Sir William Matthews. The upper reaches of the river will be developed to meet the increasing trade in coal shipments and a large dock and a breakwater constructed. It will take seven years to mature the scheme. Conjointly with the harbour development the North-Eastern Railway Company intend to construct shipping staiths costing £250,000.

An interesting function took place on Friday last at Frascati's (Louis XIV. Room), when Mr. T. Dawson Hayton, who has for the long period of twenty-five years represented the Patent Victoria Stone Co., Ltd., was entertained at dinner by his colleagues and friends, and presented with a silver salver on his retirement. Mr. H. T. Elliston, the secretary of the company, presided, and was supported by Mr. F. W Laws (works manager), and eleven other gentlemen, the length of whose services averaged twenty years each.

The Anglo-American Oil Co., Ltd., Tea Rose Wharf, Fulham, propose to provide for the storage at the wharf of 100,000 gallons of petroleum spirit. The plans provide for the conversion of the oil-filling warehouse into a one-floor fire-resisting building constructed wholly of uninflammable materials, and to be used solely for spirit filling purposes; while five additional tanks of 12,000 gallons capacity will be constructed partly beneath this building, and partly beneath ground which is not built upon. The proposed arrangements have received the approval of the L.C.C. Public Control Committee.

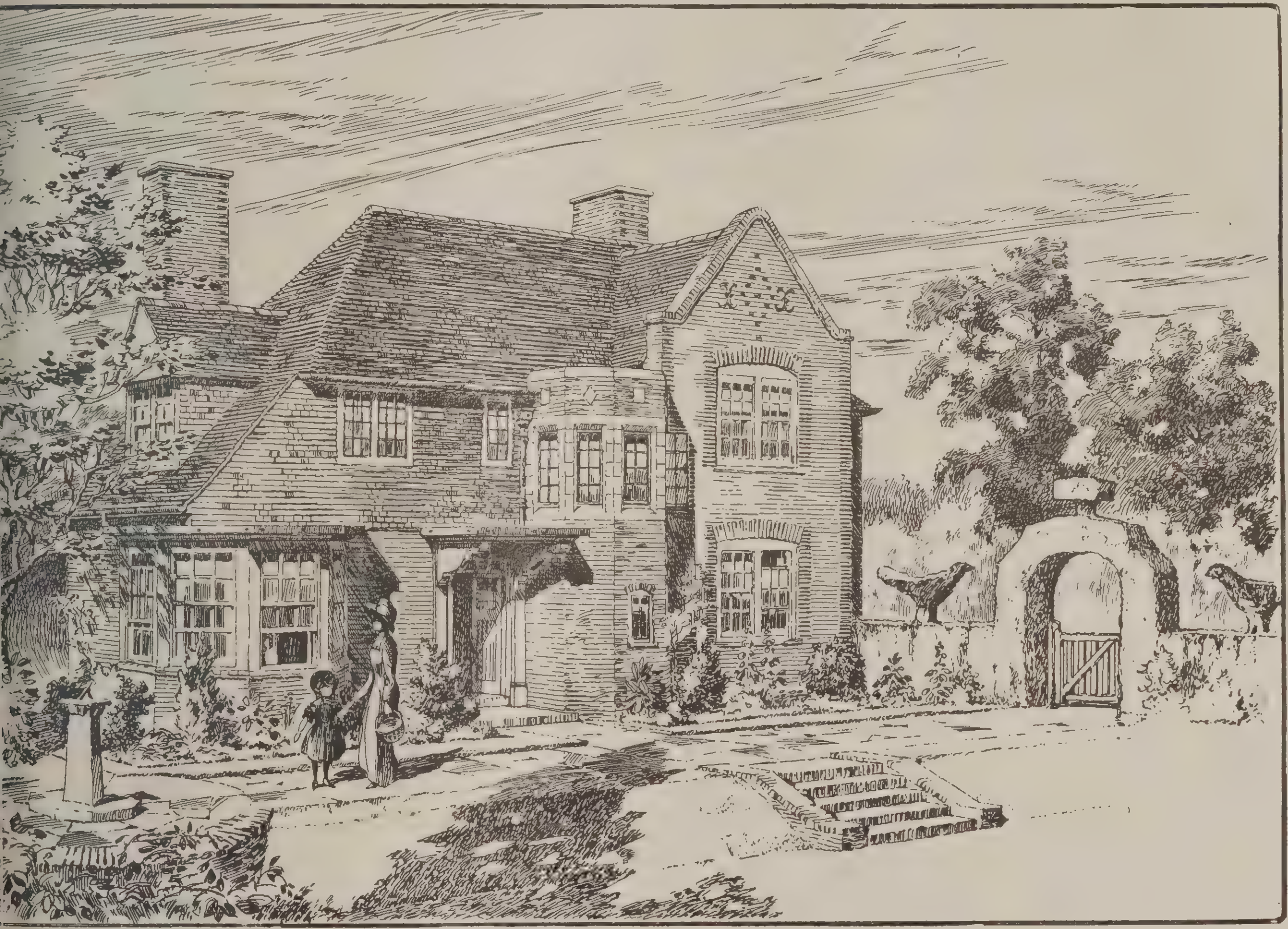
The Lord Provost's Committee of the Edinburgh Town Council last week considered a letter from the secretary of the Edinburgh, Leith, and District Building Trades Association, transmitting a copy of the following resolution unanimously passed at a meeting of the association:—"That building contracts containing more than one of the recognised separate building trades, and exceeding a gross value of £500, should be tendered for separately and directly by individual firms belonging to the different recognised building trades." The committee, on the motion of Councillor Cameron, agreed to remit the motion for consideration to a sub-committee, the object of the mover being to "discountenance as far as possible the practice of sub-contracting in important city building contracts."

WEEK-END COTTAGES, BUNGALOWS, AND OTHER SMALL HOUSES.

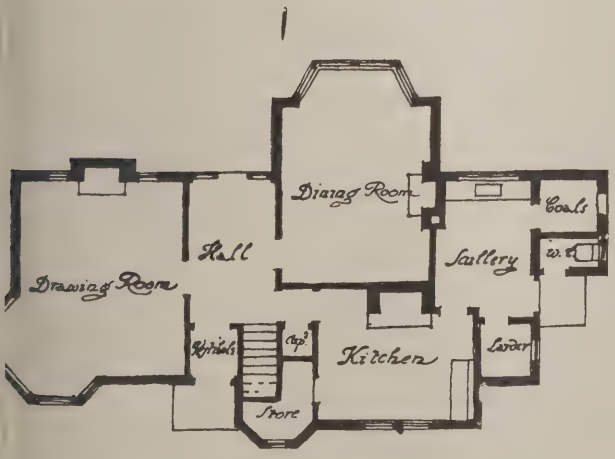
VE continue herewith the series of monthly supplements which appear in *The Architect* on the last Friday in each month and contain examples of original and unexecuted sketch designs by various architects. Most of the designs illusated this month are for houses costing less than £1000.

The Editor of *The Architect* will be pleased to introduce the authors of the designs published to any one who may sh to have a house built in accordance with the plans or a modification of them.

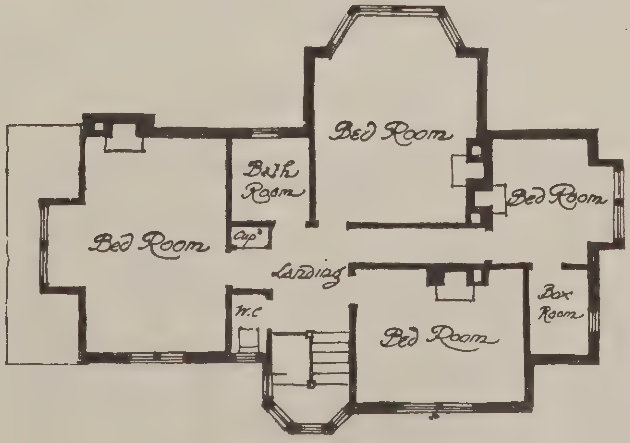
DESIGN NO. 13.



ENTRANCE FRONT FROM GARDEN.



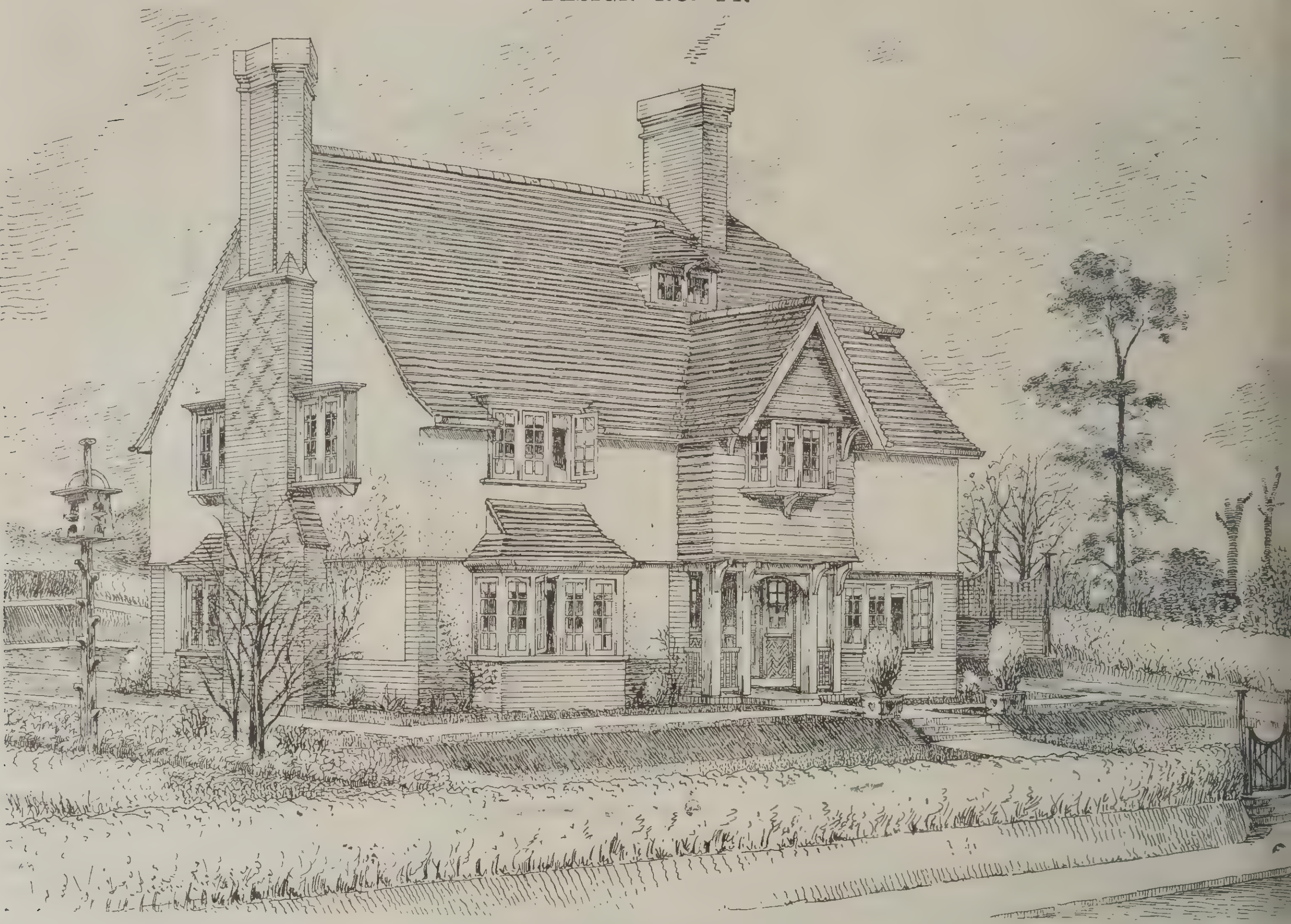
Ground Floor Plan



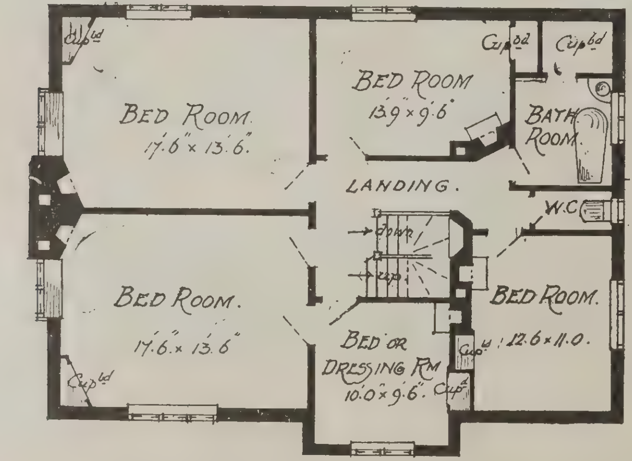
First Floor Plan

In this picturesque little house the walls would be constructed of mingled bricks with purple quoins and copings d Bath stone dressings. Parts of the upper floor would be tile hung and the roofs covered with sand-faced tiles. Double ung sash windows are provided to the chief rooms. The cost would be about £675.

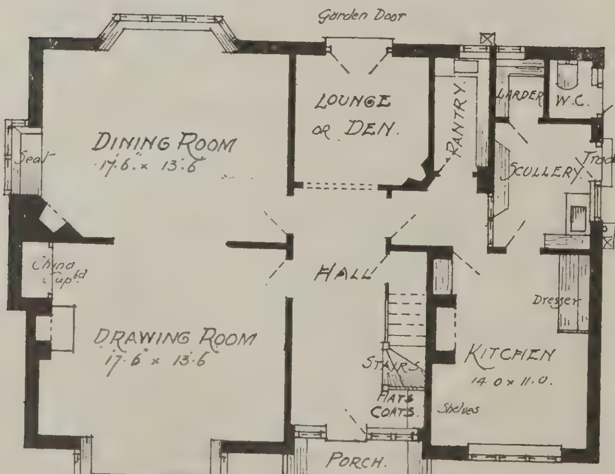
DESIGN NO. 14.



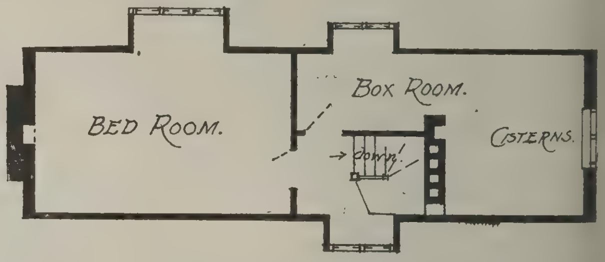
THE ENTRANCE FRONT.



FIRST FLOOR PLAN



GROUND PLAN.

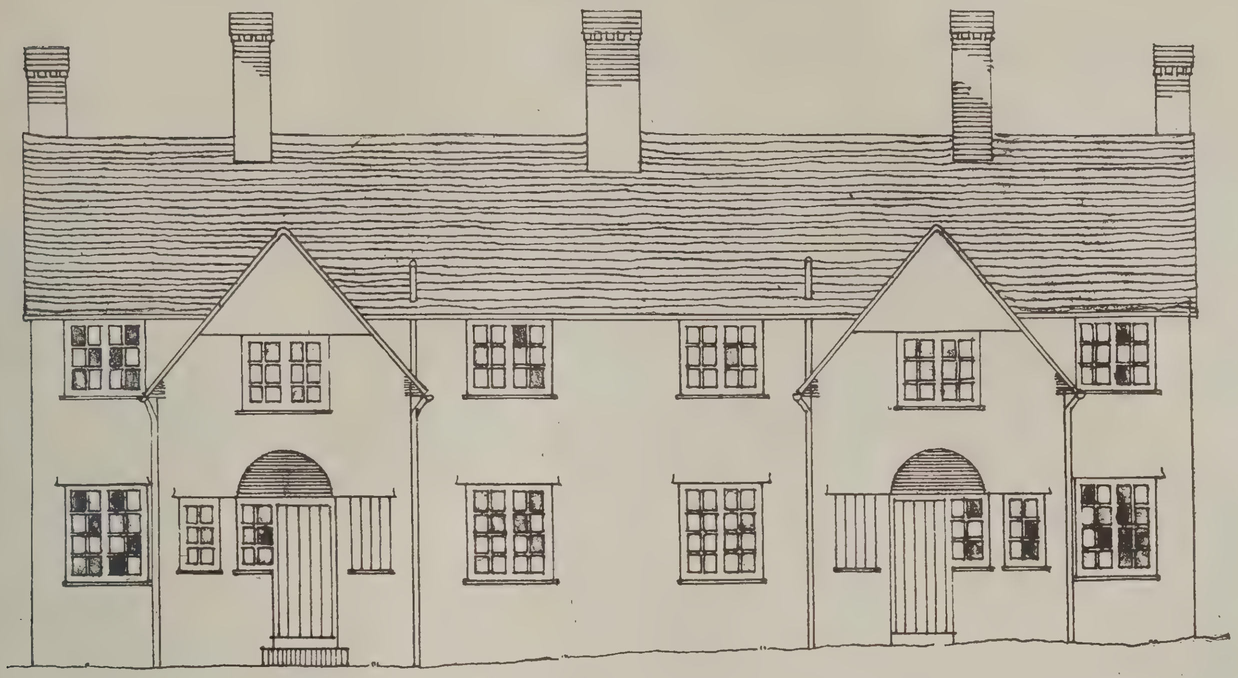


ATTIC PLAN.

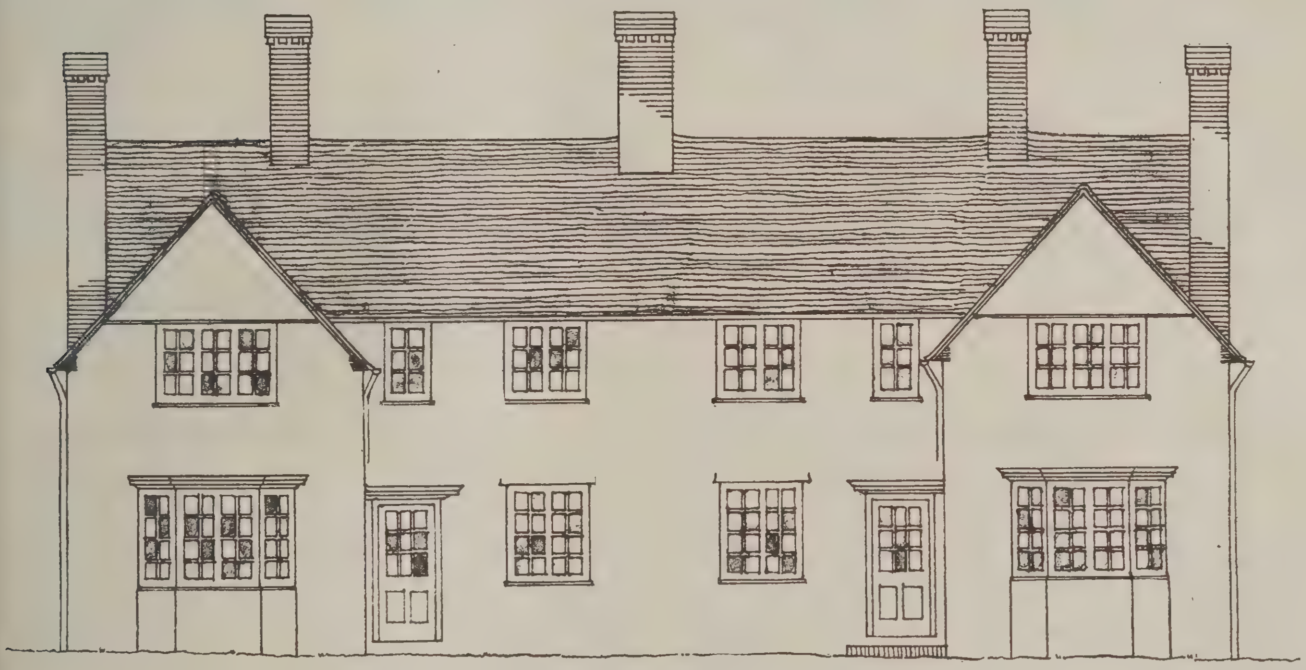
This house has been specially designed to provide the requirements of a small country house or cottage. The special features of the plan are that the reception rooms can be thrown into one if required; the lounge, opposite hall, can either be thrown into same or separated and used for study. These are entirely cut off from the kitchen department. On the first floor are provided five bedrooms, two of which are large rooms and one can communicate with a small room for a dressing room. Bathroom and w.c. are also included. The servants' room, box-room and cisterns are placed in the attics. The whole is comprised in a square and compact plan. The exterior as seen by the view is simple and attractive and would suit almost any site. The walls are finished in rough-cast except where faced with bricks on ground floor and to chimneys. The projecting front gable could be tile-hung or covered with elm boarding. The roof would be tiled and boarded underneath.

The cost would be about £810 with the attic or £765 without attic, finished internally very simply with few mouldings and cornices. Though, of course, the interior could be finished in any style and with elaboration.

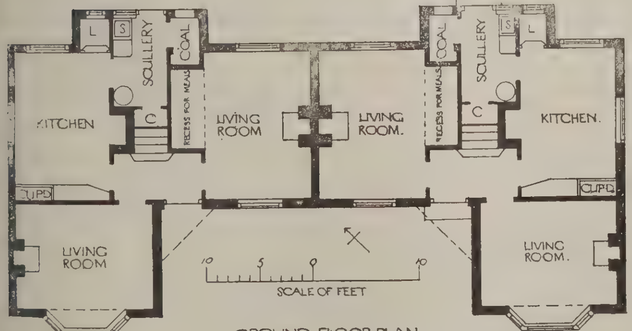
DESIGN NO. 15.



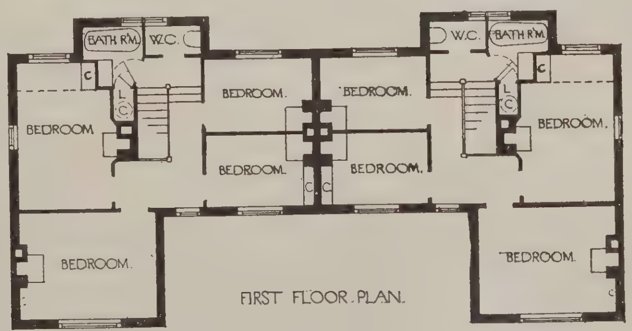
N.E. ELEVATION.



S.W. ELEVATION.

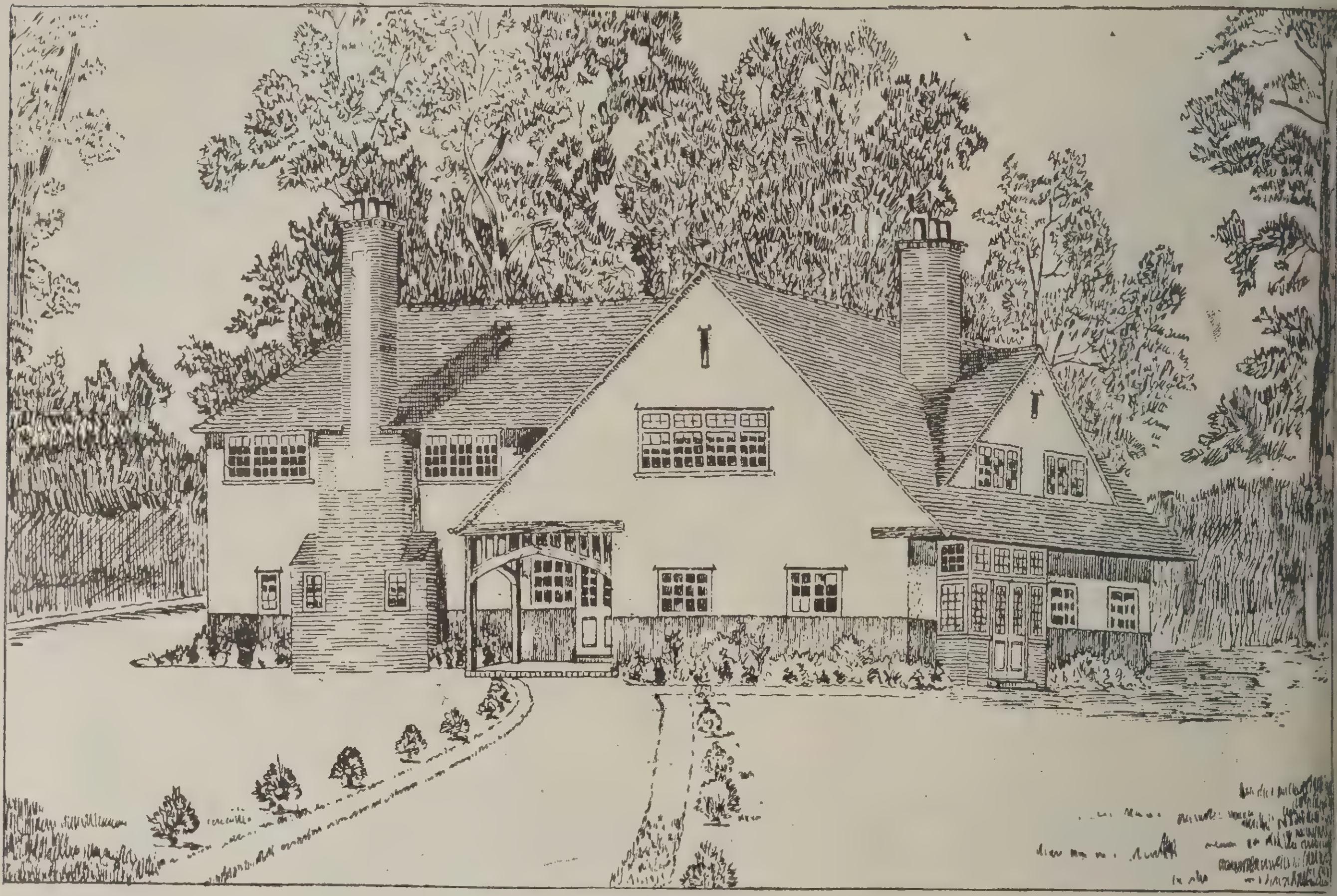


GROUND FLOOR PLAN.

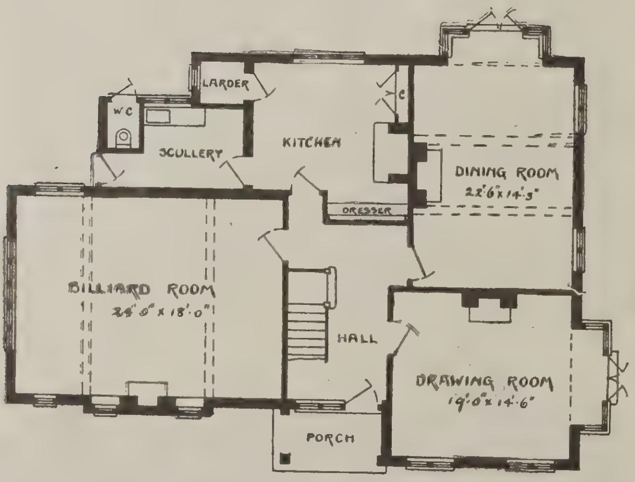


These cottages are intended to be built of local bricks covered with a rough-cast face scored with a bass broom and finished with a weather-resisting distemper wash made of lime, stale beer, copperas and Russian tallow. The plinth would be of tarred bricks and the roof covered with hand-made tiles which would also be used for the filling under arches. The cost of this pair of cottages would be about £730.

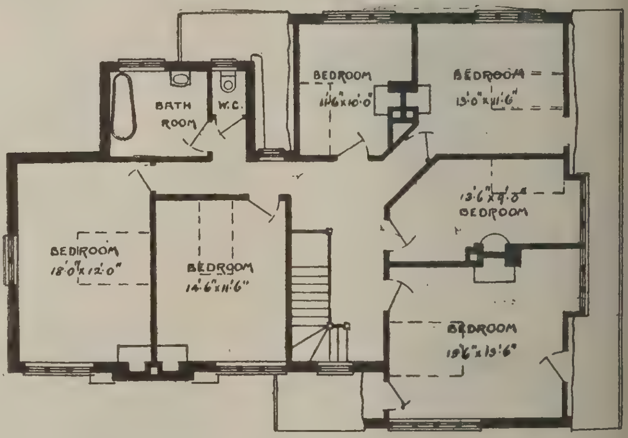
DESIGN NO. 16.



ENTRANCE FRONT.



GROUND FLOOR PLAN.

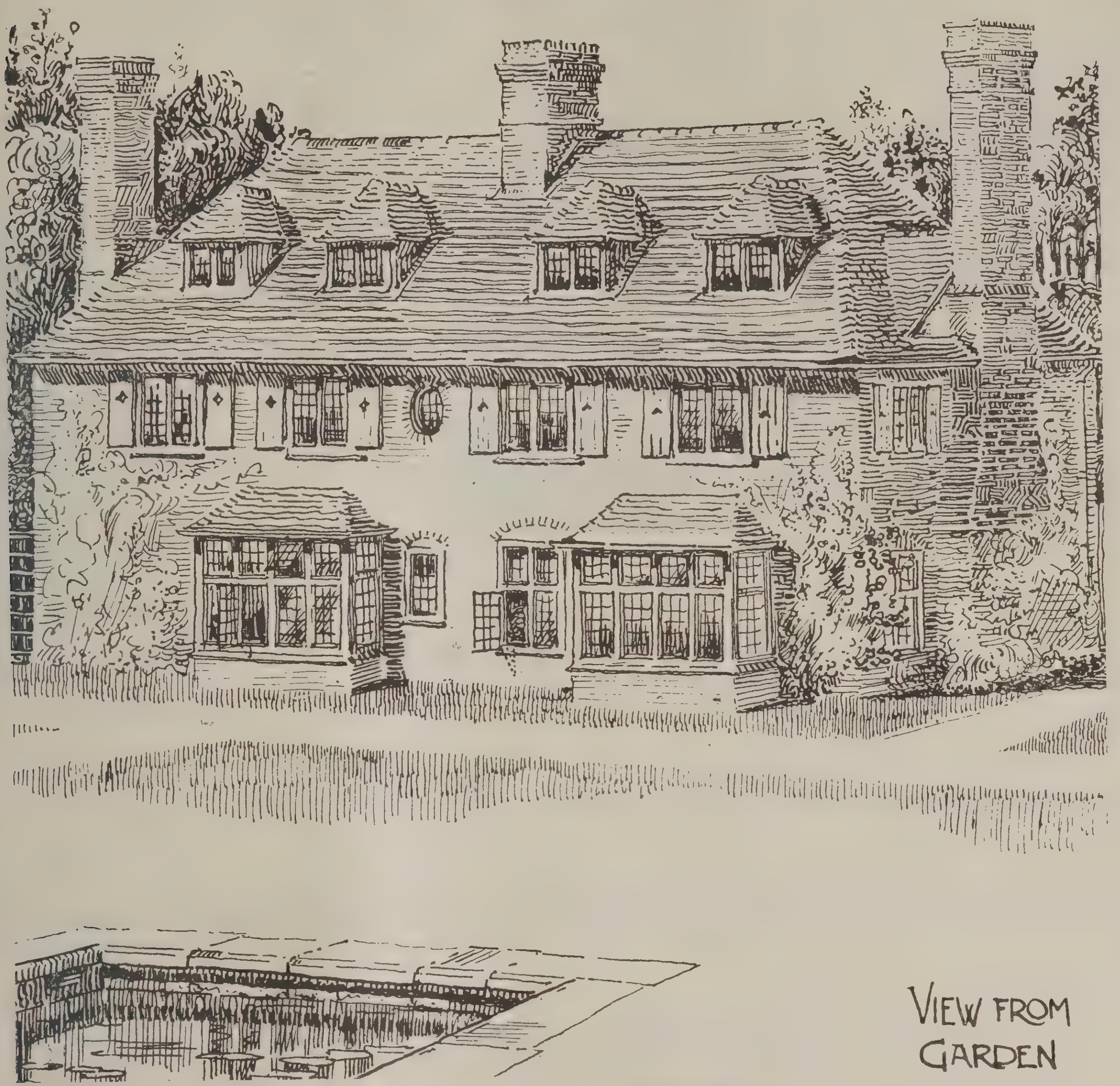


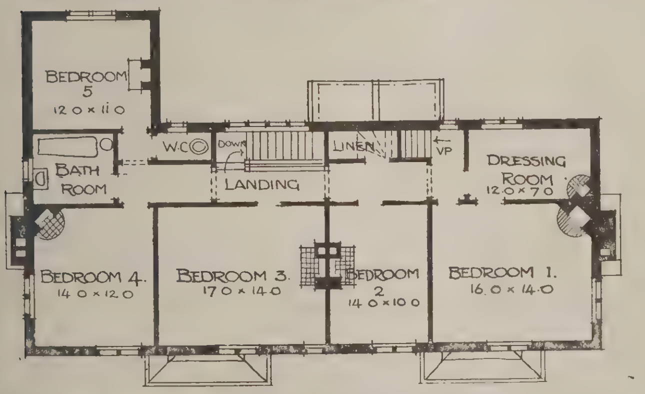
FIRST FLOOR PLAN.

This house is planned as a country residence with six bedrooms and large reception rooms. A billiard room has been included in the accommodation for amusement in the wet weather, &c. The house is planned with two floors only so as to minimise the labour. A pantry has not been included for the same reason and to reduce the plumbing work. The design is proposed to be carried out in rough-cast with a tarred base about three feet high. The chimney-stacks in mottled red bricks. The roof of dark sand-faced tiles. The windows to be casements with lead lights and the whole of the woodwork treated with "Solignum."

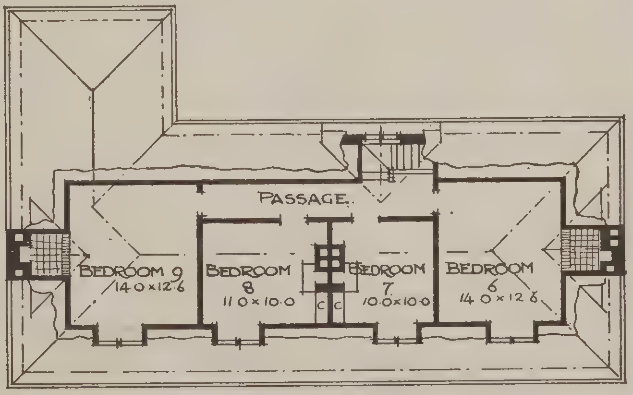
The cost of erecting same would be about £1100.

DESIGN NO. 17.

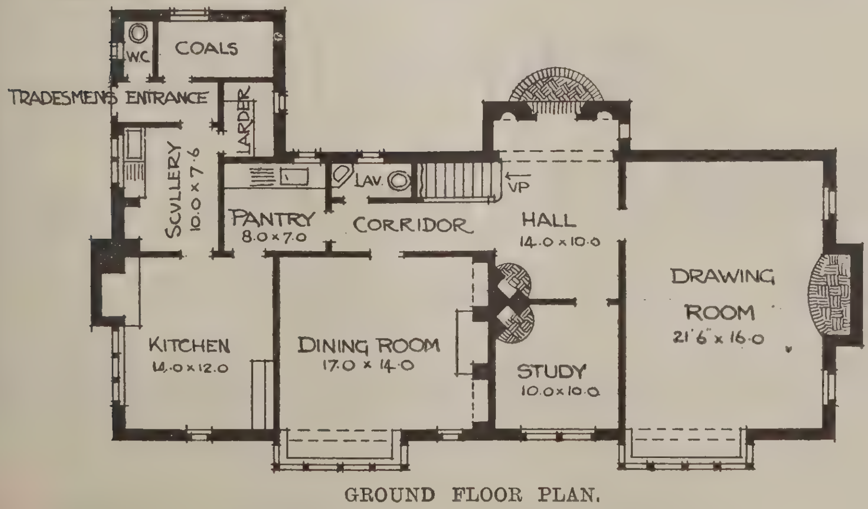




FIRST FLOOR PLAN.



SECOND FLOOR PLAN.



GROUND FLOOR PLAN.

A carefully planned house, which would make an ideal country or week-end house, containing three sitting-rooms and ten bedrooms. The simplicity of the plan would render this house economical in construction. Practically all the walls on the ground floor run up through the other floors, and the roof is extremely simple. The serving arrangements are compact and unobtrusive. Fireplaces are provided in all bedrooms. Walls and roof of good hand-made bricks and tiles, and leaded light windows in white-painted casement frames would produce a restful and dignified effect.

The cost would be about £1200.

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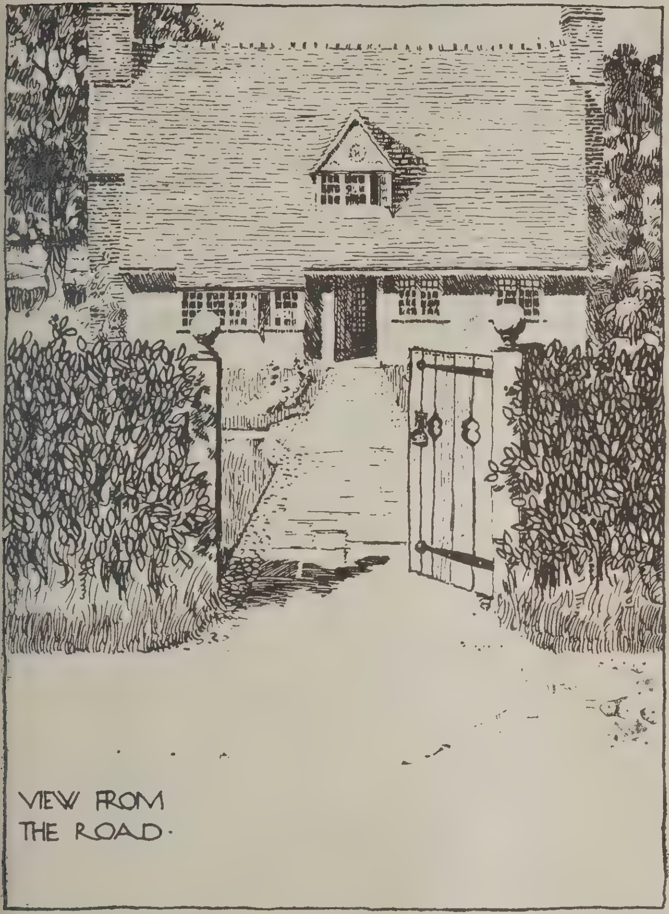
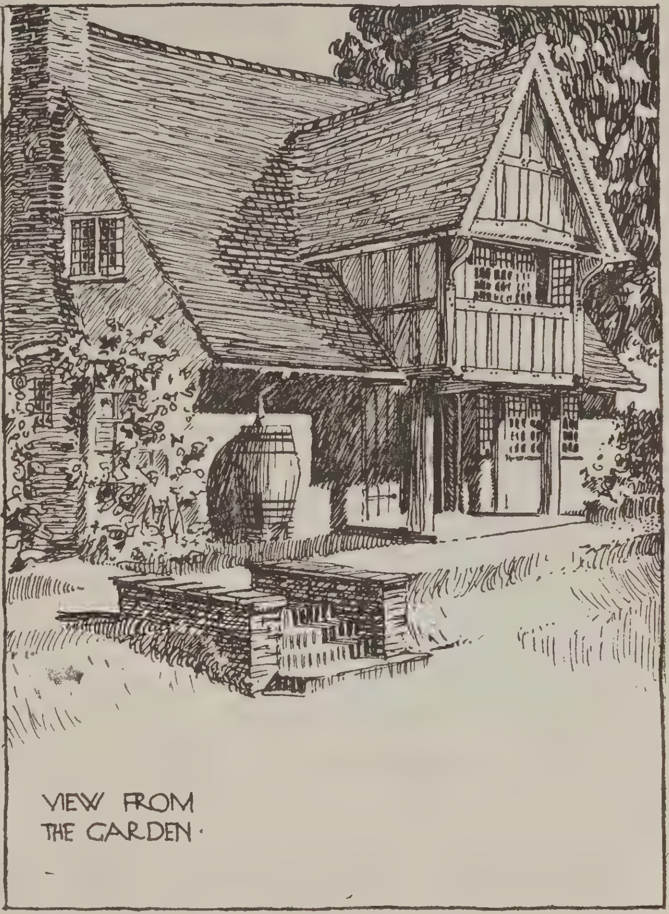
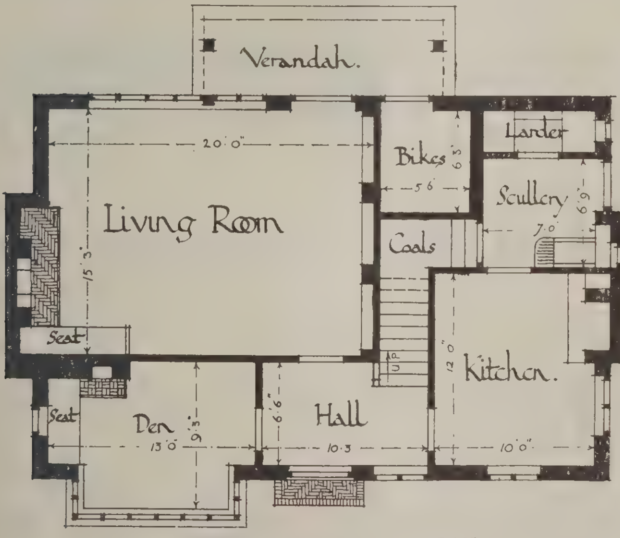
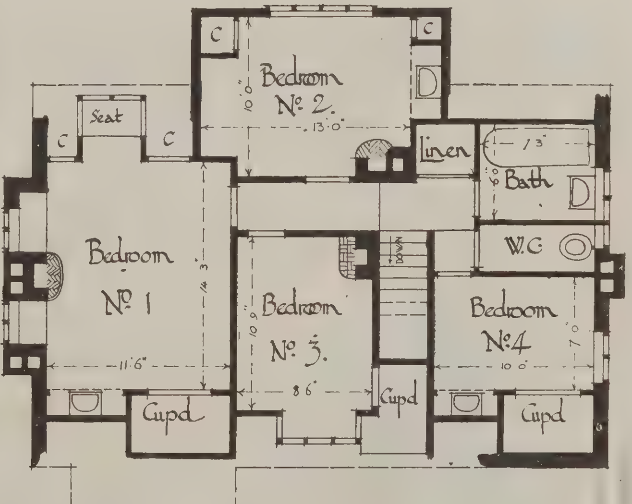
DESIGN NO. 18.







GROUND FLOOR PLAN.



FIRST FLOOR PLAN.

Economy in working and upkeep is the keynote of this design. The accommodation is admirably adapted to meet the requirements of the week-end party or small family. A large living room (with its brick fireplace) opening on to the verandah provides ample elbow room for social purposes, while the small den or study will add materially to the comfort of the house. The bedrooms are so arranged that the minimum amount of movable furniture is required; lavatory basins are provided in the bedrooms and each room has ample wardrobe accommodation. In the best bedroom chests of drawers are shown, built on each side of the fireplace, while similar fittings could be provided in the other bedrooms. The walls to be built of 9 inch brickwork rough-cast outside in cement, with the chimney-stacks in red bricks of varied shades. The half-timbered gable on garden elevation to be in oak. The roof covered with hand-made sand-faced tiles.

The cost of the house would be about £650; this price would allow for an excellent quality of fitting throughout the house.

For week-end purposes a gas heater in the scullery would be provided, so that hot water might be drawn from any tap in the house at a moment's notice.

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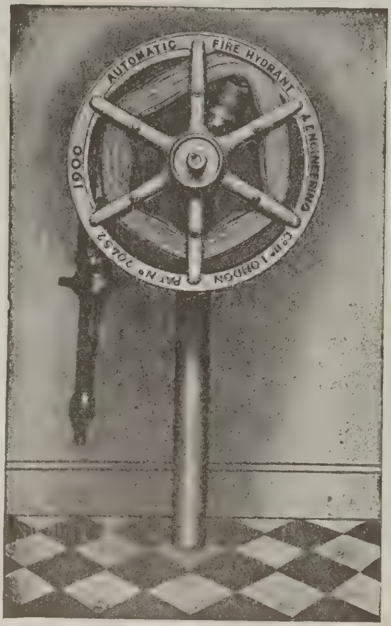

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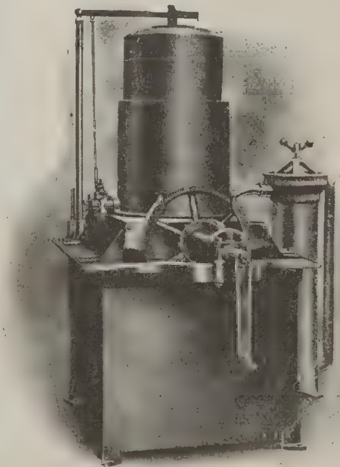

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

Special Position Spaces.—Unless ordered for weekly insertions the Proprietors cannot guarantee particular dates.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

⁂ *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Bolton.—Jan. 6.—The Lancashire and Cheshire Miners' Federation invite architects in independent practice within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1*s*. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton. N.B.—The time for sending in applications and designs has been extended from Dec. 1 to Jan. 6.

Bolton.—The King Edward VII. Memorial Fund Committee invite competitive plans from architects now practising as principals within the county borough of Bolton for the King Edward VII. Memorial Nurses' Home proposed to be erected at the Bolton Infirmary. Plan of the site and instructions may be obtained upon payment of £1 1*s*., which sum will be returned to the competitors provided they shall have sent in *bona fide* plans and particulars and shall have returned all documents, plans, &c. Mr. Samuel Parker, hon. secretary of the Committee, Town Hall, Bolton.

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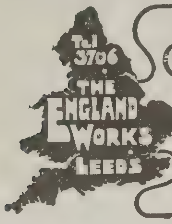

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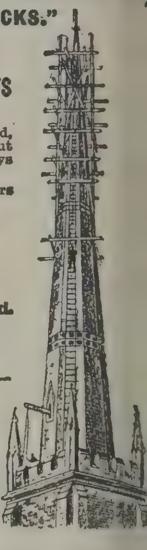

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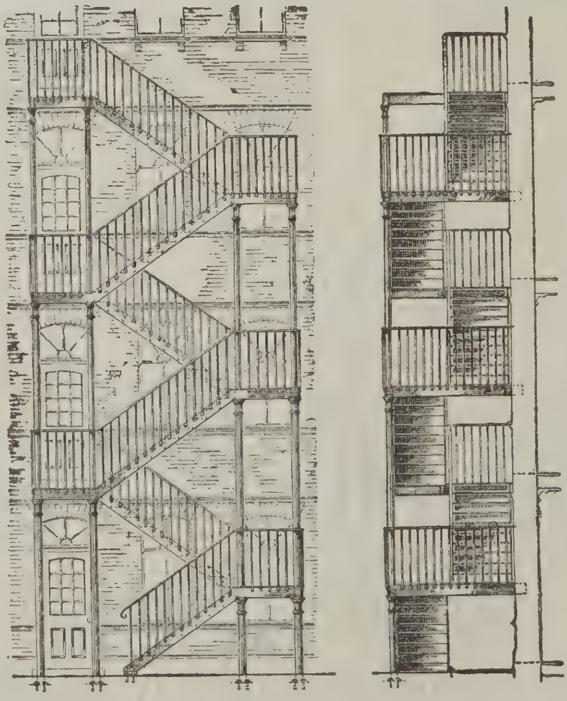

Hastings.—Dec. 31.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1*s.* deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

London.—Feb. 17.—The Port of London Authority invite preliminary sketch designs in competition for head offices proposed to be erected in Trinity Square, and for the laying out of the remainder of the land as a building site. From the sketches submitted the authors of not more than six designs will be selected to submit designs in a final competition at an honorarium of 200 guineas each, the Authority reserving to themselves the right, on the advice of their assessor, to invite not more than six other architects to send designs in the final competition. The assessor appointed is Sir Aston Webb, R.A. Conditions of the competition, with full particulars of the accommodation required, plan of the site, and photographs of the adjoining buildings, can be obtained on application, on payment of £1 1*s.*, which sum will be refunded on receipt of a bona-fide design, or on the return of the particulars within three weeks, to The Secretary, Port of London Authority, 109 Leadenhall Street, E.C.

Rochdale.—Dec. 22.—The Board of Management of the Infirmary invite architects practising in Rochdale prior to January 1, 1911, to submit plans, designs, and estimates for extending the present buildings. Conditions of competition, with other information, together with instructions to architects, can be obtained on application to the secretary. An assessor has been appointed by the committee. Mr. T. Elvyn Kershaw, secretary, Secretary's Office, the Infirmary, Rochdale.

Sofia (Bulgaria).—Dec. 15.—H.M. Minister at Sofia reports that the "Commission Permanente de l'arrondissement de Sofia" invite the submission of designs for a municipal building which it is proposed to erect at that place. Four prizes to the value of 7,000 fr. (£280), 3,000 fr. (£120), 2,000 fr. (£80), and 1,000 fr. (£40) respectively will be awarded. Architects desirous of competing must submit their designs at Sofia by Dec. 15. Copies of the programme, &c., may be obtained on application to the "Commission," as above. A copy of the programme, together with a drawing, may be seen at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

Spennymoor.—Jan. 9.—The Urban District Council invite competitive plans and designs for a public hall, market, and offices, &c. Particulars may be obtained on payment of a deposit of £2 2*s.*, which will be returned on receipt of a *bona fide* design. Premiums of £50, £25, and £10 are offered. Mr. F. Badcock, clerk, Council Offices, 3 James Street, Spennymoor. (See advertisement.)

Stafford.—Jan. 6.—The Corporation invite designs for a public library. An assessor has been appointed. Send £1 deposit, which will be returned on receipt of a bona-fide design, or the return of the conditions, &c., within one month of receipt. Mr. William Plant, A.M.Inst.C.E., borough engineer, Borough Hall, Stafford.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

CONTRACTS OPEN.

Beaver (Cumberland).—For addition and alteration to farm buildings. The County Land Agent, 28 Castle Street, Carlisle.

Blakeholm.—Dec. 11.—For erection of a detached house at Blakeholm, Windermere. Messrs. Settle & Brundrit, A.R.I.B.A., architects, Ulverston.

Bradford.—Dec. 5.—For erection of extension to photo works (all trades, separately), Idle Road. Mr. H. E. Priestley, M.S.A., architect and surveyor, 4 Bertram Road, Manningham, Bradford.

Bridlington.—Dec. 12.—For erection of new buildings in extension of the Grammar School. Deposit £1. Mr. John Bilson, architect, 23 Parliament Street, Hull.

Bury.—Dec. 13.—For erection of a cotton shed at Knowsley Street Goods Yard at Bury, for the Lancashire and Yorkshire Railway Co. The Engineer's Office, Hunts Bank, Manchester.

Cambridge.—Dec. 11.—For erection of schools on ground adjoining Melbourne Place, for the Town Council. Deposit £5. The Borough Engineer and Surveyor, Guildhall, Cambridge.

Canewdon (Essex).—Dec. 7.—For (1) alterations to Canewdon Endowed School, and (2) provision and fixing of heating apparatus there. Mr. J. F. Wood, clerk, Clarence Street, Southend-on-Sea.

Chopwell.—Dec. 12.—For erection of a dwelling-house, for the Durham County Council. Mr. W. Rushworth, Shire Hall, Durham.

Dalton.—Dec. 7.—For erection of 10 dwelling-houses and shop in Long Lane, Dalton, Huddersfield. Mr. J. Berry, architect and surveyor, 3 Market Place, Huddersfield.

Edinburgh.—Dec. 7.—The Commissioners of H.M. Works and Public Buildings are prepared to receive tenders for the alteration and extension of the Central Telephone Exchange, Rose Street, Edinburgh. Tenders are required for the whole work, and not for separate trades. Deposit £1 1*s.* H.M. Office of Works, Edinburgh.

Eldon.—Dec. 13.—For erection of a dwelling-house, for the Durham County Council. Mr. W. Rushworth, Shire Hall, Durham.

Fence Houses.—Dec. 12.—For erection of a school (for about 940 children), for the Durham County Council. Mr. W. Rushworth, Shire Hall, Durham.

Glasgow.—Dec. 11.—For the following works required in connection with alterations proposed to be executed at Partick Tramway Depot, viz.:—(1) Digger, mason, and brick works; (2) carpenter and joiner works; (3) slater and plaster works; (4) plumber work; (5) steel work. Mr. Jas. Dalrymple, General Manager, Glasgow.

Glasgow.—Dec. 12.—For the following works required in connection with the proposed re-instatement of the property in Albion Street recently damaged by fire, viz.:—(1) Mason and brick works; (2) joiner work; (3) plumber and gasfitter work; (4) plaster and tile works; and (5) painter work. Offerers may tender for all or any of the above works. The Office of Public Works, 64 Cochrane Street, Glasgow.

Hebden Bridge.—Dec. 7.—For building river and boundary walls around the playground and for the formation of a playground at the United District Secondary School. Messrs. Sutcliffe & Sutcliffe, F.S.I., architects, Hebden Bridge, Yorks.

Hendon.—Dec. 12.—For erection of an elementary school for about 1,000 scholars in the garden suburb district. Send names by Dec. 12 to Mr. James Anderson, secretary to the Committee, Council Offices, Hendon.

Ireland.—Dec. 12.—For erection of 22 labourers' single cottages, seven double cottages, and fencing plots, for the Kilkeel District Council. Board Room, Kilkeel.

Ireland.—Dec. 23.—For building a rectory at Ballywalter, co. Down. Mr. William J. Fennell, F.R.I.B.A., architect, 2 Wellington Place, Belfast.

Kendal.—Dec. 22.—For the whole or separate artificers' works required in constructing the Allen Technical Institute and Museum on the Albert Buildings site. Mr. S. Shaw, F.R.I.B.A., architect, Kendal.

Lancaster.—Dec. 13.—For erection of the girls' grammar school on the High Street estate. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Leeds.—Dec. 11.—For the construction of an underground transformer chamber at North and South Street. Mr. H. Dickinson, manager, Electric Lighting Department, 1 Whitehall Road, Leeds.

Leicester.—Dec. 8.—Tenders are invited from Leicester builders and contractors for the construction and completion of a public hall adjoining Victoria Park and Regent Road. Deposit £2 2*s.* Messrs. Stockdale Harrison & Sons, 7 St. Martin's East, Leicester.

London.—Dec. 6.—For forming bathroom accommodation in the isolation block at the North-Western Fever Hospital, Lawn Road, Hampstead, for the Metropolitan Asylums Board. Deposit £1. Mr. W. T. Hatch, M.I.C.E., M.I.M.E., engineer-in-chief, the office of the Board, Embankment, E.C.

London.—Dec. 8.—For demolition of old premises and the erection of East Ham new branch post office and sorting office, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. Mr. J. Rutherford, 22 Carlisle Place, London, S.W.

London.—Dec. 12.—For the builders' work necessary in the erection of a disinfecting station and cottage in Factory Lane, Croydon, for the Corporation. Deposit £1 1*s*. The Borough Engineer, Town Hall, Croydon.

London.—Dec. 18.—For proposed additions and internal structural alterations to and redecorating of the administrative block at the isolation hospital, Gap Road, Wimbledon, for the Corporation. Deposit £1 1*s*. The Borough Engineer and Surveyor, Town Hall, Wimbledon.

Manchester.—Dec. 5.—For extensions to the buildings at the tramways depot, Queen's Road, Cheetham. Deposit £1 1*s*. Mr. J. M. McElroy, general manager, Corporation Tramways, 55 Piccadilly, Manchester, or at the Engineer's Office, 55 Piccadilly, Manchester.

Manchester.—Dec. 8.—For the execution of sanitary alterations in connection with the following premises, for the Corporation—viz. : 4 John Street, 2 and 4 Pottery Lane, and 166 and 168 Ashton Old Road, Openshaw; 15 and 17 Boundary Lane, 12 and 14 Welbeck Street, and 71 to 85 Booth Street West, Chorlton-on-Medlock; 2 Little Rumford Street, 1 New York Street, 9 to 21 Clifford Street, and 18 and 20 Rumford Street, Chorlton-on-Medlock; 5 to 9 Rome Street, 2 to 6 Railway Street, Oldham Road; 26-30 Hyde Street, 11 Chorlton Road, Hulme. The Manager of the Drainage Department, Manchester.

Newbottle.—Dec. 12.—For erection of a school (for about 260 children), for the Durham County Council. Mr. W. Rushworth, Shire Hall, Durham.

Newquay.—Dec. 21.—For erecting a classroom, cloakroom, &c., at the Newquay Council School, Cornwall. Mr. B. C. Andrew, architect to the committee, Biddick's Court, St. Austell.

Quarry Hill.—Dec. 7.—For erection of filter-house and manager's house at the waterworks, Quarry Hill, near Mealsgate, for the Aspatria, Silloth, and District Joint Water Board. Deposit £1 1*s*. Mr. Joseph Graham, civil engineer, Castle Street, Carlisle.

Sheerness.—Dec. 18.—The Secretary of State for War invites tenders for the following work: the erection of 10B married soldiers' quarters, Sheerness Garrison, at New Barracks, in the Eastern Command. Send names and 10*s*. deposit by Dec. 8 to the Director of Barrack Construction, 80 Pall Mall, London, S.W.

Sheffield.—Dec. 11.—The Education Committee are prepared to receive tenders for works required to be done in connection with the following, viz. :—(1) Philadelphia Council School: alterations; (2) Tinsley Park Council School: alterations; (3) Carbrook Council School: new playhouse. The City Architect, Town Hall, Sheffield.

Skipton.—Dec. 8.—For the various works in erection of warehouse and mechanics' shops, &c., at Belle Vue Mills. Mr. J. Hartley, architect, Skipton.

Springhead.—Dec. 11.—For proposed drill hall (brick building), Ashes Lane, for the West Riding of Yorkshire County Association. Mr. W. Cooper, F.R.I.B.A., architect, 4 Kirkgate Buildings, Huddersfield.

Stakesby.—Dec. 4.—For extensions to the steam laundry at Stakesby, Yorks., for Messrs. Thornton & Co. Send names by Dec. 4 to Mr. A. E. Young, architect and surveyor, 77 Baxtergate, Whitby.

Stourbridge.—Dec. 12.—For alterations and additions to the goods offices at Stourbridge Town Station, for the Great Western Railway Co. The Engineer, at Wolverhampton Station.

Tyldesley.—Dec. 20.—For the erection of an elementary Council School to accommodate 500 scholars. Deposit £2. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

Wales.—Dec. 6.—For erection of 12 houses at Ynys-y-Gored, Aberfan (Glam.), for the Grove Building Club, No. 2. Mr. T. E. Rees, architect, Merthyr Tydfil.

Wales.—Dec. 8.—For erection of two pairs of semi-detached houses, Chain Road, Glyn-Neath, for Messrs. Caerbryn and Empire Collieries, Ltd. Mr. J. Llewellin Smith, M.S.A., Aberdare, Glam.

Wales.—Dec. 9.—For alterations and additions to the Ogmore Constitutional Club, Ogmore Vale. Deposit £1. Mr. L. Vaughan Evans, architect, The Court, Pencoed.

Wales.—Dec. 21.—For erection of 42 houses at Seven Sisters, near Neath, for the Bryndulais Building Club. Mr. J. C. Rees, M.S.A., Parade Chambers, Neath.

Waltham Cross.—Dec. 14.—For erection and completion of a County Council school at Waltham Cross, Hertfordshire (accommodation 408). Mr. U. A. Smith, county surveyor, Hatfield.

Washington (Durham).—Dec. 18.—For erection of 42 dwelling-houses under the Housing of the Working Classes Act, 1890. Send names and £5 deposit by Dec. 4 to Mr. J. H. Mole, surveyor, Chester-le-Street.

Wigan.—Dec. 18.—For renovation and alterations to St. Catherine's Church, Wigan—viz.: (1) thoroughly cleaning and decorating interior; (2) provision of two new staircases to galleries, new doors, &c.; (3) an efficient system of ventilation. Mr. A. J. Yates, 12 Colinfield, Wigan.

TENDERS.

ERITH.

For the construction of an additional engine-house, &c., at the Southern Outfall Works, Crossness, in the Urban District of Erith, Kent, for the L.C.C. Mr. Maurice Fitzmaurice, C.M.G., Chief Engineer of the Council, the County Hall, Spring Gardens, S.W.

Mowlem & Co.	£106,122	3	3
Topham, Jones & Railton	89,924	3	7
Griffiths & Co. (Contractors), Ltd.	84,726	2	11
Kirk & Randall	78,804	0	9
Scott & Middleton	76,856	19	10
Chessum & Sons	74,529	8	6
Dick, Kerr & Co., Cannon Street, E.C. (*recommended*)	63,689	18	5
Chief Engineer's estimate	79,623	10	7

IRELAND.

For the installation of a system of low-pressure hot-water heating in the Carnegie Library and Technical Institute, for the Rathmines and Rathgar Urban District Council. Messrs. Batchelor & Hicks, architects, Dublin.

Mellon	£18,749	0	0
Pemberton	18,490	0	0
J. & W. Stewart	17,076	0	0
Collen Bros.	16,950	0	0
Campbell & Son	16,815	0	0
Beckett	16,500	0	0
G. & T. Crampton	16,497	0	0
Hull & Co.	16,149	0	0
Farmer Bros.	16,039	0	0
J. & P. Good	15,860	0	0
J. & R. Thompson (*accepted*)	15,340	0	0

For erection of electric theatre at Lurgan. Mr. R. Cahill, architect, Dundalk.

Murdock	£1,350	0	0
Murphy	1,260	0	0
Callaghan & Sons, Lurgan (*accepted*)	1,240	0	0

LONDON.

For dividing room A in each department at the Thornhill Road School, Islington, into two rooms, and dividing rooms D and E in each department into three rooms, for the London County Council.

Brand, Pettit & Co.	£1,198	0	0
Lawrance & Sons	1,128	0	0
Garrett & Son	1,086	0	0
McCormick & Sons	1,076	0	0
Holliday & Greenwood	997	0	0
Williams & Son	990	0	0
Symes	979	0	0
Godson & Sons, Kilburn Lane (*recommended*)	960	0	0
Architect's estimate	995	0	0

For the structural improvement of the Redvers Street School, Hoxton, for the London County Council.

Rowley Bros.	£10,832	0	0
Brand, Pettit & Co.	10,662	0	0
F. & T. Thorne	10,473	0	0
McCormick & Sons	10,360	0	0
Symes	10,333	16	6
Kirk & Randall	9,669	0	0
J. & M. Patrick	9,521	0	0
Thomas & Edge	9,433	0	0
McLaughlin & Harvey	9,190	10	3
Lawrance & Sons, Ltd., City Road (*recommended*)	9,058	0	0
W. E. Blake, Ltd. (*withdrawn*)	7,996	1	10
Architect's estimate	9,376	0	0

LONDON—*continued.*

For reconstructing the girls' staircase at the Maidstone Street School, Haggerston, for the London County Council.

Stewart	£764	0	0
Stevens & Sons	719	10	0
Shurmur & Sons	699	0	0
Price	690	0	0
Lawrence & Son	681	0	0
Grover & Son	650	0	0
Lawrance & Sons	627	0	0
McCormick & Sons, Essex Road (*recommended*)	595	0	0
Architect's estimate	701	0	0

For paving and other works in connection with the diversion of Millbank, for the L.C.C.

Elliott & Co.	£9,970	13	3
Kavanagh & Co.	9,316	6	2
Lovatt, Ltd.	9,238	7	8
Wimpey & Co.	8,745	0	0
Clift Ford	8,550	0	0
Woodham & Sons	8,490	4	4
William Griffiths & Co.	8,196	5	4
Anderson	8,185	4	7
John Mowlem & Co., Ltd., Grosvenor Road, S.W. (*recommended*)	8,052	0	0
Chief Engineer's estimate	8,850	11	2

For the construction of roads and sewers round the school site on the White Hart Lane estate and the extension of Riseley Avenue to Church Lane, for the L.C.C.

Bloomfield	£4,266	7	9
Wimpey & Co.	4,028	14	10
Pedrette	3,909	1	3
Knifton	3,554	14	7
Coxhead	3,545	0	0
Grounds & Newton, South Tottenham (*recommended*)	3,150	19	7
Architect's estimate	3,740	0	0

LEIGH-ON-SEA.

For erection of a school of two departments (mixed 360, infants 320) at Leigh-on-Sea, for the Essex Education Committee. Mr. P. Brockbank, architect, Southend-on-Sea.

Main building.

Smith & Sons	£9,361	0	0
Parron & Son	8,090	0	0
Flaxman	7,455	0	0
Horace Smith	7,417	0	0
Lawrence & Sons	7,390	0	0
E. & B. H. Davey	7,200	0	0
Davey	6,947	0	0
Brown Bros.	6,900	0	0
Hacksley Bros.	6,855	0	0
Davey & Armitage	6,807	0	0
Fryd	6,800	0	0
Myall Bros.	6,800	0	0
Burrows	6,745	10	0
Moss	6,651	4	0
Davey	6,521	0	0
Hammond & Son	6,390	0	0

Playgrounds, latrines, fencing, &c.

Parron & Son	£3,673	0	0
Smith & Sons	3,471	0	0
Horace Smith	3,033	0	0
Lawrence & Sons	2,977	0	0
Davey & Armitage	2,890	0	0
Myall Bros.	2,880	0	0
Flaxman	2,764	0	0
E. & B. H. Davey	2,750	0	0
Hacksley Bros.	2,726	0	0
Fryd	2,625	0	0
Brown Bros.	2,600	0	0
Davey	2,550	0	0
Hammond & Son	2,530	0	0
Burrows	2,517	10	0
Davey	2,500	0	0
Moss	2,337	6	9

SHOREHAM.

For alterations and additions to the Shoreham Grammar School, Sussex. Mr. C. Latham, architect, Shoreham.

Barnes & Sons	£2,520	0	0
Bostell Bros.	2,499	0	0
Cheesman	2,411	0	0
Parsons & Sons	2,308	0	0
Cook & Sons	2,270	0	0
Gates & Sons	2,253	0	0
Willett	2,241	15	0
McKellar & Westerman	2,219	0	0
Curd	1,962	12	4

The South Eastern Railway Company are about to undertake very extensive alterations and extensions at the Cannon Street Hotel, London, E.C.

The will of Mr. Robert Evans, J.P., aged 78, of Nottingham, senior partner in the firm of Messrs. Evans & Sons, architects, of Eldon Chambers, Wheeler Gate, Nottingham, has been proved at £32,221.

The Brentford Board of Guardians have instructed their clerk to obtain the names and addresses of half a dozen capable architects practising within the county of Middlesex or the administrative county of London in connection with the proposed extension of the workhouse laundry. The list will be submitted to the Local Government Board for their selection.

The Warrington Education Committee last week discussed at some length a resolution of the Sites and Buildings Committee for the proposed appointment of an architectural assistant to their surveyor, to design and act as clerk of works during the erection of four contemplated new schools which are to be built within the next six years. The suggested salary was £200 a year, and it was contended there would be a large saving in fees. Strong opposition was raised to the proposal. An amendment to refer the proposal back was carried by a large majority.

The Education Committee of the London County Council recommend that as from September 12, 1911, Professor W. R. Lethaby should be retained as art adviser in the education officer's department, and that he be paid for his part-time services £100 a year. The L.C.C. in 1904 decided that Professor Lethaby should be placed on the permanent staff of the education officer's department as art adviser and principal of the Central School of Arts and Crafts, at a salary of £400. Professor Lethaby was originally appointed by the late Technical Education Board in 1894 as inspector of art schools and of craft classes, at a salary of £300 a year, in consideration of which he was not required to devote his whole time to the Council's service. His salary as a part-time officer was raised, as from April 1, 1897, to £400 a year, it being understood that £300 was in respect of his services as part-time principal of the Central School and £100 for his services as art adviser. Early this year Professor Lethaby intimated that he was not able to continue as principal of the Central School, and the Council thereupon decided to recommend the appointment of a full-time principal in place of a part-time principal. Professor Lethaby resigned his appointment as principal of the Central School as from September 11, 1911, but it is desired to retain his services as art adviser.

At the last meeting of the Durham County Council, among the contracts sealed for erection of schools were the following:—Messrs. Clerey & Charlton, Wheatley Hill School, £4,150; Mr. J. W. White, Shiney Row, £9,069; Mr. F. D. Cowieson, Barlow, £724, Town Law, £722, and Easington Temporary, £333; Mr. W. B. Cooper, Seaham Harbour upper standard, £5,819; Mr. T. Manners, Butterknowle, £2,355; Mr. W. Hudson, Escomb, £583; and Messrs. Clerey & Charlton, Ford, £2.998. Recommendations for new school buildings were made by the Education Committee as follows:—Infants' department for 400 places at Dunston Hill School, £4,000; school caretaker's house at Easington Colliery, £300; new school at Etherley to accommodate 320 scholars, £4,490; additional sum in connection with proposed new school at Oxhill, £954; Seaham Harbour temporary school, £177 7*s.* 5*d.*; proposed extension at Sherburn, £1.025; and a new iron school at Station Town, £2,900. The committee have provisionally arranged for the purchase of school sites at Shildon, Silksworth, Station Town, and Barnard Castle. They also proposed to acquire by compulsory purchase sites at West Cornforth, Blackhall Mill Colliery, East Hetton, Browney Colliery, North Brancepeth, Brandon Colliery, and Oakenshaw.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

Cheshire.

Haslington.—Nine dwelling houses and nine sets of farm buildings.

Macclesfield.—St. George's School: alterations.

Cornwall.

Lostwithiel.—Working-men's Institute: additions.

Penzance.—School for 700 children.

Cumberland.

Mealsgate.—Filter house and Manager's house at Quarry Hill, for the Aspatria, Silloth and district Joint Water Board. Mr. J. Graham, C.E. (of Carlisle), engineer.

Durham.

Byers Green.—Council School.

Chester-le-Street.—Drill Hall.

Chopwell and Eldon.—Houses. Mr. W. Rushworth (of Durham), architect.

Durham.—Laundry for the Co-operative Laundries, Ltd. (£7,000 to £8,000).

Eldon.—See above.

Fence Houses.—Council School (for about 940 children). Mr. Rushworth, architect.

Gateshead.—Drill Hall at Felling.

Newbottle.—Council School (for about 260 children). Mr. Rushworth, architect.

Sacriston.—Council School: additions and alterations. Mr. Rushworth, architect.

Sherburn.—Council School.

Whickham.—Council School at Dunston Hill.

Essex.

Canewdon.—Endowed School: alterations. County Architect.

Orsett.—Two artisans' cottages, Langdon Hills (£530). Mr. Hill-Willis, architect.

Thorpe-le-Soken.—Village Hall.

Hampshire.

Bournemouth.—Church at Winton (£6,000).

Hertfordshire.

Bishop's Stortford.—Electric Theatre (conversion of Wesleyan Chapel).

Kent.

Folkestone.—Harvey Grammar School.

Hartley Wintney.—Workhouse Chapel (£500).

Hurst.—Sunday School, Queen Street: additions and alterations (£500).

Lancashire.

Blackburn.—Wesleyan Mission Hall buildings.

Blackpool.—Elementary School (£15,000).

Bootle.—Borough Hospital: additions and alterations (£17,000).

Lancaster.—Farm and Industrial Colony extension (£12,000).

Liverpool.—University Settlement buildings (£9,500).

Manchester.—Tramways Depôt buildings: extensions, Queen's Road, Cheetham.

Leicestershire.

Loughborough.—St. George's (new) Church (£5,750).

Lincolnshire.

Donington.—Parochial Room (£800).

Frodingham.—St. Laurence's Church: enlargement (£5,000). Sir Chas. Nicholson, Bart., F.R.I.B.A., architect.

Mablethorpe.—Isolation Hospital.

Middlesex.

Ealing.—Synagogue.

Stanwell.—Boys' Home for the Staines Union. Mr. G. W. Manning (of Ashford), architect.

Willesden.—Infirmary extension: completion of block "A."

Northamptonshire.

Burton Latimer.—House, Station Road.

Offices for Coales' Boot Company.

Wellingborough.—Wesleyan Sunday Schools.

Northumberland.

Tynemouth.—Infirmary Operating Theatre (£600).

Staffordshire.

Burton-on-Trent.—Bottling stores extensions in Curzon Street for Ind, Coope & Co., Ltd. (£10,000).

Newcastle.—Post Office.

Walsall.—Mission Church.

Suffolk.

Eye.—Workhouse.

Ipswich.—St. Helen's Council School.

Lowestoft.—Beaconsfield Working Men's Club. Mr. W. J. Roberts, architect. Messrs. Brightwell & Parker, contractors.

Surrey.

Bisley.—Village Hall.

Bookham, Great.—Congregational Church.

Chertsey.—Girls' secondary school (£10,000).

Coulsdon and Purley.—Secondary school for 250 boys; conversion of the Commemoration Hall (£5,500).

Farnham.—Church house.

Mixed school for 250 children.

Sussex.

Midhurst.—Six cells for casual tramps.

Rushington.—School additions and alterations. Mr. Wentworth Hyde (of Worthing), architect.

Warwickshire.

Coventry.—Slipper baths (£2,000).

Wiltshire.

Bradford-on-Avon.—Village club. Messrs. Samson & Colthurst (of Taunton), architects. Messrs. Poole & Son (of Milverton), contractors.

Worcestershire.

Evesham.—Infants' school.

Worcester.—Infirmary extensions (King Edward VII. Memorial).

Yorkshire.

Birstall.—Infectious diseases hospital, Owler Lane: extension. Mr. J. W. Burrows, architect.

Bradford.—Photo works extension, Idle Road. Mr. H. E. Priestley, architect.

Brighouse.—Municipal baths, Mill Royd Street (£6,000).

Earby.—Picture palace and three lock-up shops, New Road.

Kelbrook.—Datcliffe shed: extension for 200 additional looms.

Kimberworth.—Higher Standard and Infants' School (£18,000).

Leeds.—Elementary School, Roundhay.

Loftus.—House for East Cleveland Co-operative Society.

Pickering.—Church institute.

Silkstone Common.—Schools for 235 children and infants.

Tinsley.—Church of England day schools: additions and alterations. Mr. G. A. Wilson (of Sheffield), architect.

WALES.

Briton Ferry.—Council school at Cwrt Sart.

Caersws.—Manager's house and office at Penstrowed Quarry. County Surveyor (Newtown, Montgomeryshire).

Cefn Cribbwr.—Council school: additional accommodation for 100 scholars.

Forden.—Workhouse adaptation as Montgomeryshire Asylum (£56,900).

Godre'rgraig.—Council school for 200 children.

Llanfachraeth.—Council school: additions and alterations. Mr. J. Owen, F.R.I.B.A. (of Menai Bridge), county architect.

Pontypridd.—Church and institute for the Glamorgan Mission to the Deaf and Dumb. Mr. E. Rees, architect.

Rhymney.—Parish hall.

Ruthin.—Technical school.

Sketty and Trebanos.—Council schools.

SCOTLAND.

Broughty Ferry.—Houses, Ramsay Place (adjoining). School at Whinnybrae.

Cinematograph theatre, Lawrence Street.

Dundee.—No. 22, Mains Road: additions.

Cinematograph theatre, Main Street.

Cinematograph theatre, Small's Wynd: additions.

Warehouses, Stannergate Road, for the Northern Agricultural Co., Ltd.

Dunfermline.—Public house, with offices and dwelling-house, East Port Street.

Dunkeld.—Four workmen's houses at the Highland Railway Station. Mr. W. Robarts (of Inverness), engineer-in-chief to the Company.

Edinburgh.—Nurses' home at Craiglockhart (accommodation for 30).

Five blocks of flatted villas, Joppa Gardens.

Ten flatted villas, Restalrig Road, for the Co-operative Building Company.

Theatre Royal alterations.

Giffnock.—Villa, Eglinton Drive.
Glasgow.—Municipal Buildings (£150,000).
Mission Hall, New Street, Halfwayhouses.
Double cottage, Harvey Street, Yoker.
Johnstone.—R. C. school.
Paisley.—Mercerising house, Blackland Mill.
Rasay.—Forty workmen's houses. Mr. J. G. Falconer (of Fort William) architect.

IRELAND.

Abbeyleix.—Labourers' cottages. Council Engineer.
Kingstown.—Baths and wash-houses (£1,000).
Lisburn.—School buildings, Wallace Avenue: for the Railway Street Presbyterian Church. Mr. J. Hunter, architect.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 8307. April 3, 1911.—Improvements relating to machines for moulding bricks, blocks, tiles, or other similar articles. T. W. Atkinson, of Thorne House, Sadberge, via Darlington, and W. C. Chapman, of Laing Street, Stockton-on-Tees. This invention has reference to brick-making machines of the horizontally sliding box type for moulding bricks, blocks, tiles, &c., and more particularly to that kind in which a number of partition plates are adapted to be moved into and out of the moulding chamber by a toothed rack and pinion. The invention provides a brick-making machine in which the end cover is automatically opened and closed as the machine is operated so that a higher rate of speed with greater ease is attainable. Fig. 1 represents a side elevation of the machine closed. Fig. 2 is a side elevation showing the machine open. *a* indicates the bottom plate of the machine, which is provided with feet or standards *b*. Mounted upon the plate *a* so as to slide thereon are portions *c* forming the sides of a box-like structure, and transversely arranged between said slides *c* and detachably secured thereto such as by bolts is a plate forming the rear wall of the said box. Hinged as at *f* to the plate *a* is the front plate *g* having means such as a locking bar *h* whereby it may be locked to the side walls *c*, as shown in fig. 1. Secured to plates by means of bolts are a number of dividing blades passing through slots formed in a vertical partition secured to the plate *a*. Each of the side walls *c* is provided with a toothed rack *l* adapted to engage with pinions *m* mounted upon a transverse shaft *n*, revolvably mounted in suitable bearings secured to the plate *a*, a handwheel *o* being keyed to said shaft *n*, whereby it may be rotated. Mounted upon brackets *p* secured to each side of plate *g* are rollers *q* adapted to bear upon runners *r* fixed to the sliding box-like structure. The operation when making solid bricks is as follows:—The parts being in the position illustrated in fig. 1, upon raising the locking bar *h* and rotating handwheel *o* in the direction of the arrow the box-like structure formed by the plates *c* will be moved rearwardly into the position shown in fig. 2, at the same time drawing the dividing blades out of action. The operator then arranges upon plate *a* a false bottom or pallet plate *s*, fig. 2, having either a smooth face or bearing upon its surface any desired pattern. The handwheel *o* is then rotated in the opposite direction, the runner *r* engaging with the rollered bracket *p* turns the end cover about its pivot *f*, thus returning the parts to the initial closed position. The material from which the bricks or tiles are to be made is then filled into the machine up to the top, roughly tamped and levelled off. The handwheel is then again operated to move the sliding portion of the machine rearwardly and permit the end cover to drop, thus leaving the bricks exposed upon the pallet plate *s*, together with which they may be removed for drying. The dividing blades may be readily detached when the machine is employed for moulding articles other than bricks, such as cornice strings, plain ashlar veneer blocks, or floor tiles, by unscrewing the bolts serving to secure them. Nov. 8, 1911.

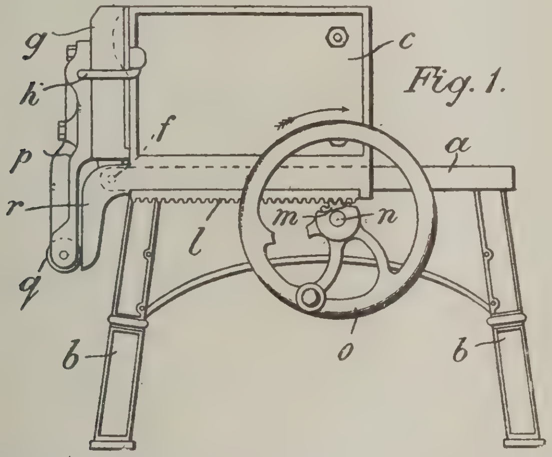
Fig. 1.

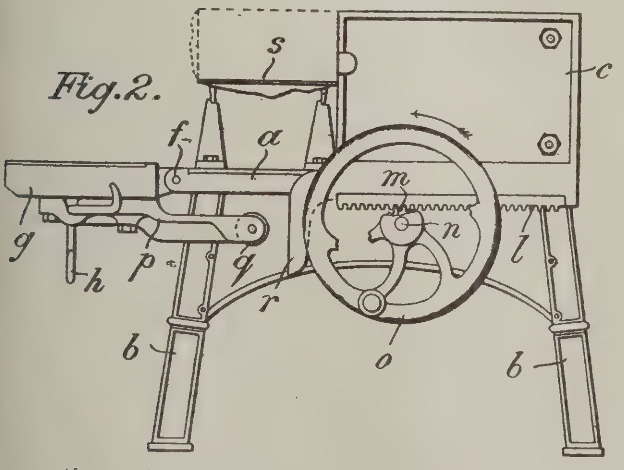
Fig. 2.

No. 7955. March 30, 1911.—Improvements in fire stoves. M. J. Adams, The Red House, Stocksfield-on-Tyne. This invention relates to stoves or fireplaces with heat-radiating walls or surfaces composed of a refractory and semi-transparent or translucent material, arranged in contact with the flames or with the fuel in active combustion. For this purpose the stove or fireplace is constructed with covers, panels, or like parts made of a refractory and semi-transparent or translucent material such as fused silica, which may form doors, dampers, or other movable parts of the stove or fireplace, or may be arranged as fixed parts of the same. The material employed being semi-transparent or translucent allows the glow of the flames or fire enclosed thereby to be seen, and owing to its refractory character it can be employed in positions in which it is in actual contact with the flames or hot fuel, in which positions it becomes highly heated and provides effective heat-radiating and glowing surfaces. Fig. 1 shows a stove in central vertical section. *a* is the frame or body of the stove provided with a fuel door *b*, fireclay back *c*, ashpan *d*, and smoke pipe *e*, all of ordinary construction. The front of this stove is fitted with panels *f* of fused silica, which, whilst preventing access of air to the combustion space otherwise than through the ashpit or suitable dampers, permit the glow of the fire to be seen, and when heated by the fire act as heat-radiating surfaces, the panels themselves glowing. It should be noted that the panels *f* enclose, in part, the space containing the combustible, and come into direct contact with the burning fuel or the flames thereof. Nov. 22, 1911.

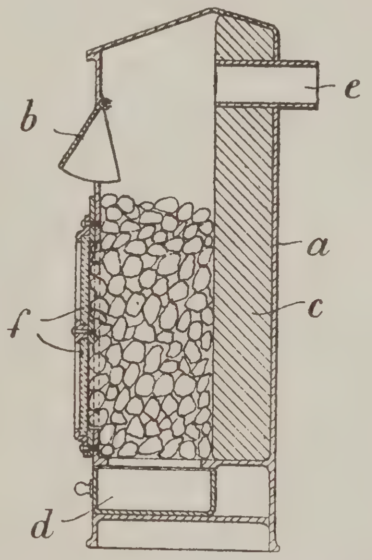
Fig. 1.

No. 935. Jan. 13, 1911.—Cement. John Craig and J. M. Ralston, both of Arthurlie Street, Barrhead, Renfrewshire. This invention has for its object to provide a cement which is waterproof and non-absorbent, and stronger than ordinary cement, which can be exposed to all kinds of weather without deterioration, which forms a strong bond to stone, wood, and metals, which has a uniform wear throughout and which not only sets very quickly, but will also set in water, and which can be used for street paving, roofing, and all other purposes for which cement at present in use can be applied. First mix certain proportions according to the use to which the cement is to be put of whinstone in the form of dust, powder, or grit with chalk, calcined magnesite, and magnesium chloride in the form of powder or as a solution, and then add cold water to bring the mixture to the proper plastic consistency. The proportions vary according to the use to which the cement is to be used, but the following is one example—viz. whinstone dust 150 parts, calcined magnesite 50 parts, and magnesium chloride 40 parts, and chalk 5 parts. Blocks formed of the above composition can be cut or carved in any way similar to ordinary stone, and still have the same smooth surface. Nov. 8, 1911.

PATENT SPECIFICATIONS PUBLISHED NOVEMBER 23, 1911.

Selected by Mr. James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 24905. Oct. 26, 1910.—Richter & Richter, 11 Dorotheenstr, Berlin. A process for manufacturing filter carbon.

25149. Oct. 29, 1910.—Convention application dated April 29, 1910. David Cohen, 2 rue de Paris, Soisy-Sous-Montmorency, Seine-et-Oise. A method of inlaying and apparatus therefor.

25219. Oct. 31, 1911.—Harold Moorcraft, of Marsden Tiles, Ltd., Dale Street, Burslem. Improvements in the method of and means for manufacturing tiles and the like.

25371. Nov. 1, 1910.—S. W. Maddick, 133 Hambalt Road, Clapham Park, S.W. Method of and the means for the electric lighting of pictures, works of art, and the like.

25465. Nov. 2, 1910.—Frederick Lennard, 85 Gracechurch Street, E.C. Manufacture and production of material for use in making roads, pathways, and the like.

25478. Nov. 2, 1910.—E. I. Parkes, of Idolholme, Lancester Road, New Barnet, Herts. Improvements in and relating to ceiling roses and like electrical fittings.

25682. Nov. 4, 1910.—J. A. Averine, Sperin House, Poslannikoff Street, Moscow. Improvements in or relating to filters.

26547. Nov. 15, 1910.—A. G. Coffin, 9 Lancashire Court, New Bond Street, W. Improvements in apparatus for heating and circulating water.

28524. Dec. 8, 1910.—James Williams, Emberton Lodge, Newport Pagnell, Olney, Bucks. Improved apparatus for supplying carburetted air.

29314. Dec. 16, 1910.—Herbert Smithson and E. R. Sharpe, of Sykes Street, Hulme, Manchester. Improvements in apparatus for electric arc lamps and other purposes.

29336. Dec. 17, 1910.—T. A. Orme and Albert Stansfield, of Atlas Meter Works, Oldham, and Meters, Ltd., 6 Mawson Chambers, Deansgate, Manchester. Improvements applicable to wet-gas meters and valves and keys for use in connection therewith.

367. Jan. 6, 1911.—William Dixon, Vespers Road, Kirkstall, Leeds. Plough for the removal of deposit or incrustation in sewers or pipes.

520. Jan. 9, 1911.—F. R. Jarvis, Cambridge Villa, Stock, near Ingatestone. Improvements in means for opening and closing fanlight windows and the like.

935. Jan. 13, 1911.—John Craig and J. M. Ralston, both of Arthurlie Street, Barrhead, Renfrewshire. Cement.

1710. Jan. 23, 1911.—Hugh Leader, A.M.I.C.E., Thornedene, Oakleigh Park, London. An improved method of and means for jointing metal sash bars of unequal size.

1863. Jan. 25, 1911.—Frederick Evans, 37 Gordon Road, Seaforth, Liverpool. Timber sampling machine.

2011. Jan. 26, 1911.—John Cable, 27 Blackett Street, Putney. Improvements connected with casement and like windows.

3526. Feb. 11, 1911.—G. A. Phillips, St. Ann's Terrace, Shaw Lane, Headingley, and H. M. Phillips, 13 Cromwell Road, Beckenham. Improvements for supporting electric incandescent lamps and other articles.

5730. March 7, 1911.—Alexander Struthers, 2 Alfriston Road, Clapham Common, West Side. Improvements connected with window sashes.

5924. March 9, 1911.—The Electric Construction Co., Ltd., and Ralph Jay, both of Bushbury, near Wolverhampton. Improvements in the construction of rotary fans.

6025. March 10, 1911.—J. H. Leighton, 96 Ninian Road, Cardiff, and J. A. Williams, 53 Cowbridge Road, Pontyclun. Improvements relating to tube sockets in sanitary and other similar tubing.

6276. March 13, 1911.—Friedrich Ruppel, 22 Kleberplatz, Strassburg. Improved valve discharge flushing apparatus.

6471. March 15, 1911.—W. E. Hipkins, Soho Foundry, Birmingham, and J. M. McGrath, 15 Cowcross Street, E.C. Improvements connected with platform weighing apparatus and weighbridges.

6672. March 17, 1911.—Alfred Platt, Stockport Road, Gee Cross, Hyde, Cheshire. Alarm (worked by gas).

7750. March 28, 1911.—C. H. Simkins and W. D. Hadley, 73 Union Street, Willenhall. Improvements relating to door and lock furniture.

7955. March 30, 1911.—M. J. Adams, The Red House, Stocksfield-on-Tyne. Improvements in fire stoves.

8307. April 3, 1911.—T. W. Atkinson, Thorne House, Sadberge, via Darlington, and W. C. Chapman, Laing Street, Stockton-on-Tees. Improvements relating to machines for moulding bricks, blocks, tiles, or other similar articles.

9704. April 21, 1911.—Johann Kreuer, Coln-Ehrenfeld, Subbeeratherstr 282. An improved screw nail for hammering into non-perforated material.

10285. April 28, 1911.—Henry Anderson, 22 Jordan Lane, Edinburgh. Improvements in means for lighting gas from a distance.

11073. May 8, 1911.—H. J. Wagner, Dellwood, Erie, New York. Improvements in and relating to combination cornice and gutters.

11103. May 8, 1911.—A. J. Boult, 111 Hatton Garden, E.C. Communication from Eduard Flugger, 19 Rodingsmarkt, Hamburg. Improved manufacture of zinc oxide and zinc sulphide.

11163. May 9, 1911.—William Podmore, West View House, Porthill, Staffs., and C. F. Bailey, Greenbank, Lawton, Chester. An improved filtration process and apparatus for the filtration of ceramic slip.

11223. May 9, 1911.—E. B. Symons, Majestic Building, Milwaukee, Wisconsin. Improvements in crushing machines.

11595. May 13, 1911.—D. B. Jones, Gilfach House, Gilfachcoch, via Bridgend. Fire extinguishing sprinklers and the like.

11810. May 16, 1911.—H. J. Wagner, Dellwood, Erie, New York, U.S.A. Improvements in and relating to eavestroughs and gutters.

12547. May 24, 1911.—Eduard Dafinger, 6 Sailerwohr, Passau, Germany. Automatic brick-cutting machine.

12563. May 24, 1911.—William Martin, of Normanhurst, Oswestry. Improvements in and relating to sash fasteners for sliding windows.

12583. May 24, 1911.—Thomas Durrans, 1 Cornwall Terrace, Regent's Park, architect. Improvements in brackets.

12779. May 26, 1911.—Hermann Allard, of Giertruidenberg, Holland. Improvements for eliminating moist air from drying rooms or the like.

15396. July 3, 1911.—C. E. Wilson, Carlton Works, Armley, Leeds. Improvements in fuel for gas fires and the like.

16061. July 11, 1911.—George Cremer, 133 Sebastianstr, Cologne-Niehl, Germany. Improvements in or relating to greenhouses, forcing-frames, and the like.

17598. Aug. 1, 1911.—R. C. Holton, 87 Waterston Avenue, Wollaston, Norfolk, Mass., U.S.A., and C. F. Brown, 12 Charles Street, Dorchester, Suffolk, Mass., U.S.A. Improvements in and relating to pipe couplings.

17789. May 9, 1911.—Convention application May 26, 1910. Ladislas Penkala, 7 rue Condorcet, Courbevoie, Seine. Improvements in presses for moulding plastic materials.

19152. Aug. 26, 1911.—Geo. Wilkinson, Beech Mount, Harrogate, York. Improvements in direct steam pressure apparatus for forcing liquids.

A sub-committee of the Liverpool Corporation last week considered a scheme for the provision of new baths at the Pierhead on a portion of the George's Dock site. The cost will, it is estimated, amount to nearly £60,000.

PURIFICATION OF WATER IN SWIMMING BATHS.*

The purity of water in public swimming ponds is a matter which undoubtedly concerns the general public health of cities and towns.

In introducing this subject, I can only just refer to the increasing popularity of swimming baths, the yearly increase in the number of baths throughout the country, and the benefit afforded to the general public by municipal bodies in providing them.

Although the management of baths may be conducted with the greatest care, still the proprietors incur serious responsibility by the possibility of the spread of some infectious complaint being attributed to impure water.

A reliable system, therefore, that not only purifies the water bacterially and chemically, but also greatly improves its appearance, is bound in time to become very popular.

Until recently the general method adopted in swimming baths to keep the water in pure condition has been to sweep out the sediment, and to empty the pond and refill it with fresh water periodically and whenever the water appeared dirty.

In the majority of baths the water is kept in far too long, and there are no means for purifying it. Although its appearance after a few days' use may not be very bad, it is nevertheless bacterially dirty after the first batch of bathers have used it.

The chief impurities contracted from bathers are bacteria, greasy excretions, and other organic impurities from the skin, and perspiration; these give the water a dull, milky appearance.

The bath water suffers more from bathers when its temperature is high, and, in my opinion, it should never be made hotter than 74° Fahr.

It will interest many to know that some recent bacteriological examinations of water from a public swimming bath gave the following startling results:—

The fresh water supply as it was delivered to the pond contained less than 1,000 germs per cc., whilst the bath water after three days' use, by a total of about 1,000 bathers, contained 300,000 germs per cc.

Germicides have been, and are, used in some cases as a means of sterilising the water, but it is very inadvisable to apply them to baths unless the baths are equipped with a proper system of filtration.

Filtration of the bath water continuously undoubtedly improves it, and aeration added to this makes a still further improvement, and with some waters the results are wonderfully good. None of these methods of purification alone, however, approach results obtained from the process of continuous precipitation in addition to filtration and aeration.

Continuous aeration and filtration have been in use for a number of years, but I think I can claim to be the first to apply the additional process of continuous precipitation.

Before entering into the merits of this process, the following is a brief outline of the cycle of operations:—

Water is drawn from the deep end of the pond by a centrifugal pump, through a preliminary strainer, and is delivered to an aerator, whence the pump draws it and delivers it through a filter and a heater back to the shallow end of the pond. The precipitant is applied to the water on its way to the filter in the form of a weak solution.

It is particularly to the precipitation process that I wish to draw your attention. This takes place in the water immediately before it is filtered.

Whilst the precipitate is forming it enmeshes the impurities, bacteria, and colour particles in the water. The action is complete, and after coagulation of the precipitate has taken place, it and the enmeshed impurities and bacteria are easily caught in the filter bed.

There is nothing foreign added to the water, and I challenge any chemist to prove that anything has been added detrimental to the water, or that what is added does not already form in a more or less degree one of its natural constituents. No valid objections can, therefore, be raised against the system in this respect, or if any are made they cannot be substantiated. Time does not permit my going further into the matter of treatment, and I can, therefore, only state that the system is nothing more than Nature's own method of natural purification of water, perfected by mechanical means to increase its rapidity.

Although the precipitation process is, perhaps, the distinctive feature of the system, it is by no means indispensable, as many may think. There are the other parts of the apparatus which assist greatly in producing the good results attained, and at certain times, when bathing is slack, these are sufficient to keep the water in first-class condition.

The filter used is the "Turn-over" patent, and is absolutely distinctive in design from any other on the market, and in the means adopted for cleansing the bed. This latter is performed by slowly revolving the chamber to completely upset the filtering material, whilst only a slight reverse flow of water is used to wash out the impurities. A syphon arrangement is also used to get rid quickly of the impurities and save washwater.

Pure, crushed quartz crystals form the filtering medium. This material is of an absolutely non-absorbent nature, sharp, extremely hard, is easily washed perfectly clean, and never requires to be renewed.

The pumps used are of the centrifugal type, and possess certain distinct advantages for the economical and rapid circulation of the large volumes of water at low heads.

They are driven by one fly-wheel engine, using the steam expansively, the exhaust being used to heat the water in the pond. The same engine serves to drive the laundry machinery. I consider this more economical than using separate steam-driven pumps.

Bathers are unanimous in their opinion that the water is very much clearer, brighter, and better than on the old system, and that it is also much superior to a newly-filled pond.

No one can dispute that the crucial test of the purity of the water is by bacterial analyses. Repeated tests have been made after the water has been in use by bathers for many months, during which time it has been subjected to the purification treatment in the bathing hours, and they all prove that the water is purer under this system than when the ponds were worked on the old system of refilling periodically. No colon bacilli were found present in any instance, and the number of ordinary germs counted per cc. were less than in the fresh town supply.

Another practical proof of the purity of the water is the fact that no odour whatever is given off from it. That distinct pungent odour which undoubtedly arises with the vapour of the heated water, and which is generally noticeable, and more or less diffused through the building, in baths which have no system of purification, has been remarkable by its entire absence with the purification system.

Whether the water used to supply the baths is pumped from a well or obtained from the town supply, the saving by the adoption of the purification system is very considerable, apart altogether from the other advantages. If this system of purification is adopted a smaller boiler suffices, the laundry engine can be dispensed with, and no large storage tanks are necessary.

By using the process of precipitation the purification of the water is effected very much quicker and better. This, therefore, means a considerable saving in time required to work the plant and in the consumption of fuel.

St. Lawrence's Church, Frodingham, Lincs., is to be enlarged at an estimated cost of £5,000. The plans have been prepared by Sir Chas. Nicholson, M.A., F.R.I.B.A., the diocesan architect.

Messrs. Robert Neill & Sons, builders and contractors, Manchester, on Tuesday filed a petition in bankruptcy in the Salford County Court, and a receiving order was made. The creditors of the firm met in the Memorial Hall, Manchester, four weeks ago, and a statement then presented showed a deficiency of £96,684 on the total liabilities estimated to rank amounting to £120,096.

As a large estate on the boundary of Droylsden and Clayton is to be laid out as a garden city, and another estate on the Droylsden side of Clayton Bridge is also to be developed, the Droylsden Council have appointed a committee to prepare a preliminary scheme for putting the Town Planning Act into operation. In a report issued by the surveyor and engineer of the Council, it was stated that if that step were not taken the district "would be cut up in such a way as to prohibit any definite well-defined scheme, much to the detriment of that city suburb." On the Alderdale estate in the same Manchester suburb, where there is to be a garden city, the land has already been planned out for streets. The houses will be of the modern semi-detached type, with gardens back and front. It is proposed to build there nearly two thousand houses.

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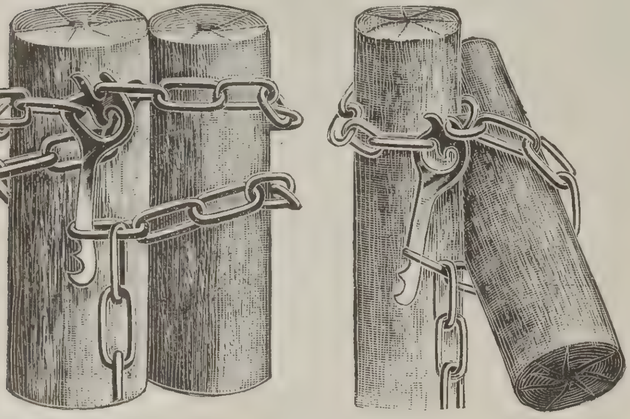
* **Abstract of a Paper presented to the Congress of the Royal Sanitary Institute at Belfast by Mr. Balfour Bramwell.**

TRADE NOTES.

We illustrate this week a new form of scaffolding chain which is about to be put on the market by Messrs. H. Elliott & Co., The Mall, Ealing, W., and to which the trade name of "Perfect" has been given. In use the chain is first slung round the poles and then hooked into the adjustable device at the upper end of the spring lever; then wind the chain round the pole, and hook the other end in the lower part of the lever at whatever point it may be required, so that the pole rests on the chain. The chain thus ensures that the greater the load on the scaffolding the firmer shall be its connection round the pole, and the greater the impossibility of slipping. The standard length of the chains is about 3 feet, but they can be made in any lengths required. They are about five-sixteenths of an inch thick, and of high strength. The fixing is, it will be seen, quite simple, and can be done quickly by any workman. The first cost is moderate and the subsequent outlay is nil.



The "Grundy" system of Automatic Temperature Control (patented by John Grundy, Ltd., heating engineers and ventilating specialists, 393a City Road, E.C.) goes to the root of one of the greatest troubles in heating. The margin between a room too cold and a room too hot is quickly bridged by many heating systems which rather err on the side of over-efficiency. The golden mean between the two is difficult to attain and still more difficult to keep. Control appliances are, of course, common enough—but most of them show obvious shortcomings. These seem to be avoided by the Grundy system, which embodies the principle of the thermometer, depending for its action upon the movement, consequent upon changes of temperature, of a column of mercury. This action of the thermostat is communicated electrically to the valve controlling the flow of steam or hot water through the apparatus. The Grundy thermostat, when applied to domestic heating apparatus, is arranged to operate within a margin of half a degree above and below the predetermined temperature, but for special purposes any desired temperature can be maintained under approved conditions for long periods without greater variation than 1-1,000° Fahr. The thermostat is made in several forms, and may be applied to gas as well as steam heating, automatic air gratings, and electric fans. In tests carried out at the National Physical Laboratory the exactness of the temperature controlled by two independent regulators was most marked. Col. Crompton, C.B., M.Inst.C.E., &c., reporting on the Grundy system, says:—"It has never failed in its action and I see no reason why it ever should fail. . . It therefore daily saves a considerable sum in wages. . . There is a large field for this apparatus, as there is nothing similar which can do the same work on the market." The system has been approved and adopted by many important bodies, including the L.C.C. and the Metropolitan Asylums Board.

The Bath Stone Firms, Ltd., have, it is understood, changed their name to the "Bath and Portland Stone Firms, Ltd.," in consequence of their very large interests at Portland.

VARIETIES.

The Worcestershire Standing Joint Committee have deferred consideration of a plan for new county offices to be erected at Worcester at a cost of £10,500.

Mr. Bligh Bond, F.R.I.B.A., has taken into partnership Mr. W. E. Ellery Anderson, from the office of Mr. J. Comper. The office of the firm of Messrs. Bond & Anderson will be at Glastonbury, with a sub-office at the Star Life Building, Bristol.

Messrs. Read & Waring, civil engineers, Westminster, have been appointed by the Berwick Town Council as engineers to the joint water scheme, which is estimated to cost £18,000.

Preparations are being made in the Matlock district for the carrying out of a scheme of sewerage estimated to cost nearly £50,000. Matlock has obtained sanction to borrow £35,000, and Matlock Bath £12,000.

The Sheffield City Council are applying for sanction to borrow £61,099 for the extension of the Neepsend Electricity Generating Station. The Local Government Board inquiry will be held at the Town Hall on December 7.

Messrs. Jarvis & Richards, architects, have prepared plans for a Girls' Secondary School which it is proposed to erect at Chertsey at a cost of £10,134. The accommodation is for 200 students.

The Farnham Burial Board have approved plans and estimates for laying out five acres of land in Wrecclesham as an additional burial ground at a cost of £3,100. The work includes a chapel and caretaker's lodge.

Messrs. Alfred Price & Sons, architects, Sandbach, have prepared plans for proposed alterations to the parish church at Buglawton, Cheshire. Amongst other works intended are the erection of a quasi-chancel, the making of a centre aisle, and the setting up of a new reredos.

The Bury Corporation General Purposes Committee recommend the Town Council to appoint as borough engineer Mr. Ainsworth Settle, the borough engineer of Heywood. The salary will be £450, rising in three years to £500. There were 92 applicants.

Mr. Macdonald, the city engineer to the Glasgow Corporation, is to be appointed as architect for the reconstruction of the area in the Trongate, formerly occupied by the old Tontine Warehouse recently destroyed by fire. A proposal that the work should be put out to competition was lost.

A large scheme of church extension is now being entered upon at Preston. A grant of £5,000 is recommended towards a church in the proposed parish of St. Cuthbert. Another grant of £1,500 is recommended towards a site in the Deepdale district and a new church in place of a temporary building. For a site and a church in the Frenchwood district £5,500 is recommended. Towards a site for a church in Fulwood £500 is suggested. A site for St. Cuthbert's Church has been given by Sir William E. M. Tomlinson, and £2,000 has been raised in the district towards the cost of the building. A site has also been acquired for a church in the Frenchwood district.

The Winnipeg Builders' Exchange, which has been sharing in the present prosperity of Western Canada, are to have an important thirteen-storey building erected with a special view to their requirements. The work will be commenced early next year. In the same town substantial progress is being made towards the completion of a Hall of Industry under the management of the Winnipeg Development and Industrial Bureau. This building will have a main street frontage of 378½ feet and a further frontage of 200 feet. Amongst the offices to be provided therein are those for the city planning commission.

Plans for the extension of the General Post Office, George Square, Glasgow, have now been approved, and building operations will shortly be commenced on the South Frederick Street site, from which the old buildings have already been removed. The scheme, which is estimated to cost about £80,000, shows an increase of over 50 per cent. on the present accommodation. Reinforced concrete will be largely used in the construction of the buildings. The architect for the building is Mr. W. T. Oldrieve, F.R.I.B.A., of H.M. Office of Works, Edinburgh. Messrs. Perry & Co., Ltd., are the contractors for the reinforced concrete work, and Messrs. George Newton & Son are the general contractors.

Mr. Batsford will shortly publish a book by Mr. C. R. Ashbee entitled "Should we Stop Teaching Art?" The volume is partly the outcome of the recent findings of the Departmental Committee of the Royal College of Art. Mr. Ashbee pleads for the organisation of craftsmen throughout the country, and for financial assistance from the State to enable them to combat successfully the decentralising influences upon their work resulting from uncontrolled mechanism. Mr. Ashbee offers a solution of the difficulty, and deals with the serious effect of mechanism in the last ten years upon the quality of the national output in the arts, upon the organisation of our schools, and upon the lives of our craftsmen.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

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EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2* p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Bolton.—Jan. 6.—The Lancashire and Cheshire Miners' Federation invite architects in independent practice within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1*s*. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton. N.B.—The time for sending in applications and designs has been extended from Dec. 1 to Jan. 6.

Bolton.—The King Edward VII. Memorial Fund Committee invite competitive plans from architects now practising as principals within the county borough of Bolton for the King Edward VII. Memorial Nurses' Home proposed to be erected at the Bolton Infirmary. Plan of the site and instructions may be obtained upon payment of £1 1*s*., which sum will be returned to the competitors provided they shall have sent in *bona fide* plans and particulars and shall have returned all documents, plans, &c. Mr. Samuel Parker, hon. secretary of the Committee, Town Hall, Bolton.

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Banbury.—Jan. 8.—The Town Council invite designs by January 8 for workmen's dwellings to be erected within the borough. Applications for particulars, accompanied by 10s. deposit, which will be returned on receipt of bonâ-fide designs, should be made to Mr. Arthur Stockton, town clerk, Town Hall, Banbury.

Hastings.—Dec. 31.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1s. deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

London.—Feb. 17.—The Port of London Authority invite preliminary sketch designs in competition for head offices proposed to be erected in Trinity Square, and for the laying out of the remainder of the land as a building site. From the sketches submitted the authors of not more than six designs will be selected to submit designs in a final competition at an honorarium of 200 guineas each, the Authority reserving to themselves the right, on the advice of their assessor, to invite not more than six other architects to send designs in the final competition. The assessor appointed is Sir Aston Webb, R.A. Conditions of the competition, with full particulars of the accommodation required, plan of the site, and photographs of the adjoining buildings, can be obtained on application, on payment of £1 1s., which sum will be refunded on receipt of a bona-fide design, or on the return of the particulars within three weeks, to The Secretary, Port of London Authority, 109 Leadenhall Street, E.C.

Rochdale.—Dec. 22.—The Board of Management of the Infirmary invite architects practising in Rochdale prior to January 1, 1911, to submit plans, designs, and estimates for extending the present buildings. Conditions of competition, with other information, together with instructions to architects, can be obtained on application to the secretary. An assessor has been appointed by the committee. Mr. T. Elvyn Kershaw, secretary, Secretary's Office, the Infirmary, Rochdale.

Sofia (Bulgaria).—Dec. 15.—H.M. Minister at Sofia reports that the "Commission Permanente de l'arrondissement de Sofia" invite the submission of designs for a municipal building which it is proposed to erect at that place. Four prizes to the value of 7,000 fr. (£280), 3,000 fr. (£120), 2,000 fr. (£80), and 1,000 fr. (£40) respectively will be awarded. Architects desirous of competing must submit their designs at Sofia by Dec. 15. Copies of the programme, &c., may be obtained on application to the "Commission," as above. A copy of the programme, together with a drawing, may be seen at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

Spennymoor.—Jan. 9.—The Urban District Council invite competitive plans and designs for a public hall, market, and offices, &c. Particulars may be obtained on payment of a deposit of £2 2s., which will be returned on receipt of a *bona fide* design. Premiums of £50, £25, and £10 are offered. Mr. F. Badcock, clerk, Council Offices, 3 James Street, Spennymoor. (See advertisement.)

Stafford.—Jan. 6.—The Corporation invite designs for a public library. An assessor has been appointed. Send £1 deposit, which will be returned on receipt of a bona-fide design, or the return of the conditions, &c., within one month of receipt. Mr. William Plant, A.M.Inst.C.E., borough engineer, Borough Hall, Stafford.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

CONTRACTS OPEN.

Aston.—Dec. 30.—For erection of an extension to the station in Chester Street, Aston, for the Birmingham Electric Supply Committee (Messrs. A. Harrison & Cox, architects, 109 Colmore Row, Birmingham). Send names and £2 2s. by Dec. 14 to Mr. Christopher Silk, quantity surveyor, 33 Newhall Street, Birmingham.

Audenshaw.—Dec. 12.—For the erection of leather-dressing works at Audenshaw, near Manchester. Send names by Dec. 12 to Messrs. Lindley & Gibson, architects and surveyors, Ashton-under-Lyne.

Barking.—Dec. 14.—For the erection of Barking new post office for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1s. Barking Post Office and H.M. Office of Works, Storey's Gate, S.W.

Barking.—Dec. 22.—For the works comprised in the extension of the electricity works, East Street. Deposit £2 2s. Mr. C. F. Dawson, surveyor, Public Offices, Barking, Essex.

Barrow-in-Furness.—Dec. 20.—For the construction of conveniences in Hindpool Road and Salthouse Road, and the extension of the existing convenience in Church Street. Borough Engineer and Surveyor, Town Hall, Barrow-in-Furness.

Beaminster.—Dec. 16.—For erection of additions to the masters' house at the grammar school, Beaminster, Dorset. Mr. H. H. Hounsell, architect, Bridport.

Birmingham.—Dec. 13.—For erection of Delivery Office at the Lawley Street Goods Depôt, for the Midland Railway Co. The Engineer's offices, Midland Railway, Derby.

Broadclyst.—Dec. 30.—For rebuilding Elbury farm buildings, in the parish of Broadclyst, Devon. Messrs. E. H. Harbottle & Son, architects, County Chambers, Exeter.

Bromley.—Dec. 19.—For erection of a women's convenience on the Martin's Hill recreation ground. Deposit £1. The Borough Engineer's office, Municipal Offices, Bromley, Kent.

Brough (Yorks.).—Dec. 16.—For erection of a police station and courthouse at Brough, for the Standing Joint Committee of the East Riding. Deposit £1 1s. Mr. J. Watson, quantity surveyor, Cogan Chambers, Hull, and the County Surveyor, Beverley.

Denby Dale.—Dec. 15.—For the various works required in erection of three dwelling houses and boundary walls at Kitchenroyd, Denby Dale, Yorks. Messrs. J. Kirk & Sons, architects, Central Buildings, Market Place, Huddersfield.

Durham.—Dec. 19.—For erection of three dwelling-houses at Earl's House Industrial School, for the County Council. Mr. W. Rushworth, Shire Hall, Durham.

Earlsheaton.—Dec. 18.—For erection of four houses at Bank Top, Earlsheaton, York. Messrs. J. Barton & Son, architects and surveyors, Halifax Road, Dewsbury.

Edinburgh.—Dec. 18.—For erection of the fire-resisting floors, &c., in connection with the alterations and extension of the central telephone exchange, Rose Street, Edinburgh, for the Commissioners of H.M. Works and Public Buildings. Any system of construction may be adopted for the work. Deposit £1. H.M. Office of Works, 3 Parliament Square, Edinburgh, or at H.M. Office of Works, G.P.O., Glasgow.

Fence Houses.—Dec. 12.—For erection of a school (for about 940 children), for the Durham County Council. Mr. W. Rushworth, Shire Hall, Durham.

Glasgow.—Dec. 12.—For the following works required in connection with the proposed re-instatement of the property in Albion Street recently damaged by fire, viz. :—(1) Mason and brick works; (2) joiner work; (3) plumber and gasfitter work; (4) plaster and tile works; and (5) painter work. Offerers may tender for all or any of the above works. The Office of Public Works, 64 Cochrane Street, Glasgow.

Haslington.—Dec. 18.—For erection of nine single dwelling-houses and nine sets of farm buildings on the Haslington Estate, near Crewe. Deposit £1. The County Estate Office, 49 Northgate Street, Chester, and the Estate Office, 137 Nantwich Road, Crewe.

Hendon.—Dec. 12.—For erection of an elementary school for about 1,000 scholars in the garden suburb district. Send names by Dec. 12 to Mr. James Anderson, secretary to the Committee, Council Offices, Hendon.

Hipperholme.—Dec. 16.—For the mason's, joiner's, slater's, plasterer's, concretor's, plumber's and heating work required in additions to the Wesleyan school. Mr. J. F. Walsh, F.S.I., architect and surveyor, 10 Harrison Road, Halifax.

Horsham.—Dec. 26.—For alterations and additions to the Horsham Grammar School, for the West Sussex and Chichester Joint Education Committee. Send names and £1 1s. deposit by Dec. 11 to Mr. H. P. Roberts, A.R.I.B.A., county education architect, Thurloe House, High Street, Worthing.

Hounslow.—Dec. 23.—For constructing a hospital and other work at Staines Road, Hounslow. Deposit £1 1*s*. Mr. H. R. Peake, 213 High Street, Hounslow.

Ireland.—Dec. 23.—For building a rectory at Ballywalter, co. Down. Mr. William J. Fennell, F.R.I.B.A., architect, 2 Wellington Place, Belfast.

Keighley.—Dec. 13.—For erection of conveniences in West Lane. The Borough Engineer, Keighley.

Kendal.—Dec. 22.—For the whole or separate artificers' works required in constructing the Allen Technical Institute and Museum on the Albert Buildings site. Mr. S. Shaw, F.R.I.B.A., architect, Kendal.

Lancaster.—Dec. 13.—For erection of the girls' grammar school on the High Street estate. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

London.—Dec. 12.—For the builders' work necessary in the erection of a disinfecting station and cottage in Factory Lane, Croydon, for the Corporation. Deposit £1 1*s*. The Borough Engineer, Town Hall, Croydon.

London, Dec. 12.—For re-plastering the ceilings at the Central Library, High Street, Lewisham, and at the Forest Hill library, Dartmouth Road, Forest Hill, for the Lewisham Public Libraries Committee. Surveyor's department, Town Hall, Catford.

London.—Dec. 18.—For proposed additions and internal structural alterations to and redecorating of the administrative block at the isolation hospital, Gap Road, Wimbledon, for the Corporation. Deposit £1 1*s*. The Borough Engineer and Surveyor, Town Hall, Wimbledon.

Macclesfield.—Dec. 23.—For erection at the workhouse of a nurses' home, mortuary, and an extension of the infirmary. Deposit £1 1*s*. Messrs. Whittaker & Bradburn, 19 King Edward Street, Macclesfield.

Manchester.—Dec. 13.—For building a wash-house at the New Bridge Street Workhouse. Deposit 10*s*. 6*d*. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

Manchester.—Dec. 13.—For building a screen to the boys' playshed at the schools at Swinton, near Manchester. Deposit 10*s*. 6*d*. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

Milnrow.—Jan. 5.—For erection of an elementary school at Milnrow, near Rochdale, to accommodate 400 children, for the Lancashire Education Committee. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Newbottle.—Dec. 12.—For erection of a school (for about 260 children), for the Durham County Council. Mr. W. Rushworth, Shire Hall, Durham.

Newquay.—Dec. 21.—For erecting a classroom, cloakroom, &c., at the Newquay Council School, Cornwall. Mr. B. C. Andrew, architect to the committee, Biddick's Court, St. Austell.

Oldham.—Dec. 20.—For the builders' work required to be done in erection and completion of a number of lock-up shops adjoining the Victoria Market Hall. The Borough Surveyor's Office.

Old Trafford.—Dec. 18.—For the extension of the technical institute, Stretford Road, for the Stretford Education Authority. Deposit £3 3*s*. Messrs. J. Bowden & Co., architects, 14 Ridgefield, Manchester.

Shoreham-by-Sea.—Dec. 16.—For erection of the Shoreham-by-Sea Sunday Schools. Deposit £1 1*s*. Mr. A. W. Nye, M.S.A., Town Hall, Shoreham-by-Sea, Sussex.

South Bank.—Dec. 11.—For the whole of the works required in erection of a school, providing accommodation for 820 children, in Victoria Street, South Bank, for the North Riding of Yorkshire County Council. Send names and addresses by Dec. 11 to Messrs. J. M. Bottomley & Wellburn, architects, 28 Albert Road, Middlesbrough, and 2 Basinghall Square, Leeds.

Stevenage.—Dec. 18.—For erection of a fire station. Deposit 10*s*. 6*d*. Mr. W. O. Times, clerk, Council offices, Stevenage, Herts.

Storrington (Sussex).—Dec. 26.—For proposed alterations and additions to the Council School, for the West Sussex and Chichester Joint Education Committee. Deposit £1 1*s*. Mr. H. P. Roberts, A.R.I.B.A., county education architect, Thurloe House, High Street, Worthing.

Stourbridge.—Dec. 12.—For alterations and additions to the goods offices at Stourbridge Town Station, for the Great Western Railway Co. The Engineer, at Wolverhampton Station.

Swingfield and Elham (Maidstone).—Dec. 16.—For the following works for the Kent County Council: (1) Red House, Swingfield—(*a*) erection of a cowshed, (*b*) carrying out repairs to house, buildings, &c.; (2) Fir Tree Farm, Elham—carrying out repairs to house and buildings. Mr. A. Barker, county land agent, 38 King Street, Maidstone.

Tattenhall.—Dec. 16.—For new Council school at Tattenhall, Chester. Deposit £1. Mr. H. Beswick, F.R.I.B.A., county architect, Newgate Street, Chester.

Teignmouth.—Dec. 14.—For extension of Teignmouth post office, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. The Postmaster at Teignmouth Post Office, or H.M. Office of Works, &c., Storey's Gate, S.W.

Tyldesley.—Dec. 20.—For the erection of an elementary Council School to accommodate 500 scholars. Deposit £2. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

Wales.—Dec. 12.—For erection of stores at Abercrave (Brecon), for the Abercrave Co-operative Society. Deposit 5*s*. Manager, Co-operative Society, Abercrave, Brecon.

Wales.—Dec. 12.—For erection of an electric theatre at Dowlais, for the Victoria Cinema Co., Ltd. Deposit £2 2*s*. Messrs. Johnson & Richards, architects, Merthyr Tydfil.

Wales.—Dec. 12.—For the rebuilding of the Victoria Inn, Dowlais, for Messrs. The Pontycapel Brewery Co. Deposit £1 1*s*. Messrs. Johnson & Richards, architects, Merthyr Tydfil.

Wales.—Dec. 14.—For erection of a stores at Llantwit Fardre, for the Llantrisant and Llantwit Fardre Rural District Council. Mr. T. Saunders, School Street, Pontyclun.

Wales.—Dec. 16.—For erection of a cottage and homestead on Holding Henllys No. 1, Newport (Mon.), for the Monmouthshire Small Holdings and Allotments Committee. Mr. C. R. Harding, county land agent, County Council Offices, Newport, Mon.

Wales.—Dec. 21.—For erection of 42 houses at Seven Sisters, near Neath, for the Bryndulais Building Club. Mr. J. C. Rees, M.S.A., Parade Chambers, Neath.

Wales.—Jan. 5.—For the following works, for the Breconshire Education Committee—namely: Crickhowell Council School, erection of cloakrooms and sundry other alterations to the existing building; Llanganten Council School, addition of class room (32 places), cloakrooms, &c., and sundry alterations to the existing building; Talgarth Council School, erection of girls' cloakroom and other works. Mr. C. W. Best, surveyor to the committee, County Hall, Brecon.

Waltham Cross.—Dec. 14.—For erection and completion of a County Council school at Waltham Cross, Hertfordshire (accommodation 408). Mr. U. A. Smith, county surveyor, Hatfield.

Washington (Durham).—Dec. 18.—For erection of 42 dwelling-houses under the Housing of the Working Classes Act, 1890. Send names and £5 deposit by Dec. 4 to Mr. J. H. Mole, surveyor, Chester-le-Street.

Wigan.—Dec. 18.—For renovation and alterations to St. Catherine's Church, Wigan—viz.: (1) thoroughly cleaning and decorating interior; (2) provision of two new staircases to galleries, new doors, &c.; (3) an efficient system of ventilation. Mr. A. J. Yates, 12 Colinfield, Wigan.

Mr. William Forrest Salmon, F.R.I.B.A., of Rowantreehill, Kilmacolm, and of Glasgow, architect, who died on October 7 last, left personal estate valued at £7,008, of which £6,691 is in Scotland.

Mr. W. H. Ward read a paper last Monday before the Liverpool Architectural Society on "French Renaissance Architecture." The paper was read in place of one entitled "Architecture as an Expression of Faith," by Mr. George Hubbard, F.S.A., who was unable to attend owing to serious illness.

The Executive Committee of the Liverpool Cathedral have accepted the design submitted by Mr. Gilbert Scott for the reredos which is to extend the full width of the sanctuary, and will be about 50 feet in height. The work, which is the gift of a local lady, will cost some £10,000.

Among the papers to be read before the Royal Society of Arts after Christmas are "The Development of Artistic Skill in the Applied Arts," by Mr. Charles C. Allom; "Illuminated MSS.," by Mr. Cyril Davenport; "The Influence of Ozone in Ventilation," by Dr. Leonard Hill and Dr. Martin Flack; "Greek Sculpture," by Professor E. A. Gardner; and three lectures by Mr. Noel Heaton on "Materials and Methods of Decorative Painting."

TENDERS.

DARTFORD.

For the erection of a school to accommodate 300 scholars on the Maypole Estate, for the Kent County Council. Mr. W. H. Robinson, M.S.A., architect, Caxton House, S.W.

Lonsdale	£4,599	0	0
McCormick & Sons	4,545	0	0
Spinner	4,290	0	0
H. & G. Taylor	4,264	0	0
Kazak	4,258	0	0
A. & B. Hanson	4,098	0	0
Smith & Sons	4,098	0	0
Crossley & Son	3,988	0	0
Gunning & Sons	3,980	0	0
Wallis & Sons	3,963	0	0
F. & G. Foster	3,961	0	0
Skinner	3,959	0	0
Archer & Son	3,858	0	0
Cook & Sons	3,819	0	0
Friday & Ling	3,775	0	0
Podger & Son, Bromley (*recommended*)	3,718	0	0

HOOLE.

For erection of a Council school at Hoole, Cheshire. Messrs. J. H. Davies & Sons, architects, Chester.

Davies & Co.	£4,149	0	0
Williams	4,080	0	0
Browne	3,960	0	0
Storrs, Sons & Co.	3,939	0	0
Mayers, Son & Co.	3,911	0	0
McLellan Bros.	3,890	0	0
Nixon	3,783	0	0
Matthews, Nantwich (*recommended*)	3,528	0	0

LONDON.

For the supply, delivery and erection of (i.) sand drying plant, (ii.) crushing rolls, screens and elevators, and (iii.) stone-crushing machine, screen and elevator, required for the Battersea Bridge and Leven Road, Poplar, permanent way L.C.C. depôts.

(i.) *For sand-drying plant for both depôts (including a provisional* £50).

Allen & Co.	£3,003	0	0
Buchanan & Son	1,950	0	0
The Butterley Co.	1,940	0	0
St. James's Engineering Co.	1,920	0	0
Goodwin, Barsby & Co.	1,715	0	0
T. & J. Hosking, Bermondsey (*recommended*)	1,015	0	0
Estimate of chief officer of tramways	1,500	0	0

(ii.) *For crushing rolls, screens and elevators for both depôts.*

Booth & Bros.	£3,002	0	0
Allen & Co.	1,863	5	0
The Butterley Co.	1,597	0	0
Hadfield's Steel Foundry Co.	1,554	14	0
Buchanan & Son	1,350	0	0
Goodwin, Barsby & Co.	1,226	8	0
Horsfall Destructor Co., Pershore (*recommended*)	651	0	0
Estimate of chief officer of tramways	550	0	0

(iii.) *For stone-crushing machine, screen and elevator, for Leven Road depôt.*

Buchanan & Son	£500	0	0
The Butterley Co.	465	0	0
Goodwin, Barsby & Co.	441	0	0
Hadfield's Steel Foundry Co.	373	15	0
Booth & Bros.	323	15	0
Allen & Co., Sheffield (*recommended*)	262	0	0
Estimate of chief officer of tramways	300	0	0

For structural and other alterations at the Islington fire-station.

Holloway	£786	0	0
Rowley Brothers	693	0	0
Leslie & Co.	679	0	0
J. & C. Bowyer	674	0	0
Johnson & Co.	606	0	0
Downs	595	0	0
Higgs & Hill, South Lambeth Road, S.W. (*recommended*)	595	0	0
Architect's estimate	600	0	0

LONDON—*continued.*

For the erection of a secondary school to accommodate 456 boys on the Craster Road site, Norwood.

Appleby & Sons	£26,758	0	0
Smith & Son	25,748	0	0
King & Son	25,589	0	0
Parker & Sons	25,370	0	0
Garrett & Son	25,338	18	10
Thomas & Edge	24,387	0	0
Downs	24,197	0	0
Wall, Ltd.	23,864	0	0
Kirk & Randall	23,680	0	0
Marsland & Sons	23,474	0	0
Smith & Sons	23,322	0	0
Leng	23,321	0	0
Holliday & Greenwood	23,302	0	0
Patman & Fotheringham	23,283	0	0
Wallis & Sons	22,887	0	0
J. & C. Bowyer	22,585	0	0
Rowley Bros., Boundary Works, Wood Green (*recommended*)	22,555	0	0
Architect's estimate	22,654	0	0

For re-dividing rooms E and F in the boys', girls' and infants' departments at the Whittington school, Islington.

Brand, Pettit & Co.	£1,168	0	0
Garrett & Son	1,094	0	0
Holliday & Greenwood	974	0	0
Rowley Bros.	918	0	0
Symes	897	0	0
McCormick & Sons	865	0	0
Lawrence & Son	840	0	0
McLaughlin & Harvey	815	0	0
H. L. Holloway, Deptford (*recommended*)	800	0	0
Architect's estimate	893	0	0

For re-dividing rooms A, B and C in the boys' department. and rooms C, D and E in the girls' and infants' departments at the Johanna Street school, Lambeth.

Garrett & Son	£1,056	0	0
Courtney & Fairbairn	942	5	0
Holliday & Greenwood	853	0	0
Smith & Son	821	0	0
J. & C. Bowyer	777	0	0
Leng	773	0	0
Lawrence & Son	756	0	0
Lathey Bros.	732	0	0
Lole & Co.	728	0	0
Johnson & Co.	725	0	0
H. L. Holloway, Deptford (*recommended*)	720	0	0
Architect's estimate	794	0	0

For the erection of a secondary school for 456 girls, on the Highgate Road, St. Pancras.

Allen & Sons	£27,444	0	0
Miskin & Sons	27,183	0	0
Treasure & Sons	27,040	0	0
Holliday & Greenwood	25,381	0	0
Perry & Co. (Bow)	25,267	0	0
Lawrance & Sons	25,047	0	0
Ford & Walton	24,944	17	3
Godson & Sons	24,631	0	0
Rowley Bros.	24,483	0	0
J. & C. Bowyer	24,099	0	0
Patman & Fotheringham	23,923	0	0
McLaughlin & Harvey, 13 Brecknock Road (*recommended*)	23,699	18	1
Architect's estimate	24,500	0	0

WREXHAM.

For erection of a church in the Ruthin Road district, with furniture and boundary walls. Messrs. Prothero, Philpott & Barnard, architects, Cheltenham.

G. & W. Edwards	£3,199	0	0
Long & Sons	3,080	0	0
Jones	2,900	0	0
Samuel	2,896	0	0
Wycherley & Co.	2,864	0	0
Woolley	2,841	0	0
Thompson & Co.	2,697	0	0
Collins & Godfrey, Tewkesbury (*accepted*)	2,501	0	0

TUNBRIDGE WELLS.

For secondary school, for Kent Education Committee. Mr. Wilfrid H. Robinson, M.S.A., architect, Caxton House, Westminster, S.W.

	£	s.	d.
Davis & Leaney	£10,767	0	0
Kirk & Randall	10,178	0	0
Gluyas	9,700	0	0
Longley & Co.	9,569	0	0
Crates & Son	9,500	0	0
Browning	9,120	0	0
Blake, Ltd.	8,999	0	0
Ellis Bros.	8,985	0	0
F. & G. Foster	8,985	0	0
Martin & Co.	8,914	0	0
Strange & Sons	8,890	0	0
Smith & Sons	8,887	0	0
Cook & Sons	8,885	0	0
Wallis & Sons	8,867	0	0
Jarvis	8,837	0	0
Chessum & Sons	8,829	0	0
Ballard	8,820	0	0
Skinner	8,691	0	0
Lowe & Co.	8,640	0	0
Godden & Son	8,559	0	0
Sandell & Sons	8,550	0	0
Archer & Son	8,478	0	0
Burrows, Maidstone (*recommended*)	8,361	10	0

COMPETITION NEWS.

Cheltenham.—The Town Council decided on Monday to arrange an open competition, instead of one limited to the town, in order to obtain designs for the proposed municipal offices on the Winter Gardens site (south side).

London.—The Willesden Board of Guardians have agreed to invite Messrs. A. Saxon Snell, G. A. Sexton, J. Cash, and W. Jacques to submit sketch plans for the homes for children proposed to be erected on a site adjoining the receiving house.

Manchester.—The City Council on Wednesday approved of the recommendation of Professor R. Blomfield, A.R.A., the assessor, that the design submitted by Messrs. Crouch, Butler & Savage, of Birmingham, in the competition for the proposed library and art gallery on the old Infirmary site in Piccadilly, should be awarded the first premium. The resolution was necessary to fulfil the Council's obligations to those who sent in competitive plans. One of the conditions of the competition was that "in the event of the Corporation not giving any instructions to proceed with the work within twelve months of the assessor's award the selected architect will be paid an additional sum of 400 guineas, which sum, with the initial payment of 100 guineas, will merge in the commission of 5 per cent. if and when the buildings are carried out; and, in the event of the Corporation abandoning the work altogether, the selected architect will be paid a further sum of 500 guineas, making, with the previous payments, a total premium on the entire competition of 1,000 guineas."

York.—At the last meeting of the City Council, a report was received from the Education Committee stating they had advertised for competitive plans for a new school in the South Bank district, the commission offered to the successful architect being 4 per cent. on the estimated outlay, £10,000. Mr. W. Birch moved an instruction to the Education Committee that the conditions be amended so as to allow members of the Royal Institute of British Architects to compete. This instruction was adopted with two dissentients.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

An ordinary meeting of the Council of the above body was held on Monday at No. 31 South Frederick Street, Dublin. The President, Mr. A. E. Murray, R.H.A., F.R.I.B.A., occupied the chair, and there were also present:—Messrs. F. Batchelor, J. H. Webb, Lucius O'Callaghan, W. Kaye-Parry, C. H. Ashworth, F. G. Hicks, F. Hayes, G. C. Ashlin, G. P. Sheridan, and C. A. Owen, Hon. Secretary. Mr. Ashlin proposed a resolution of condolence with the relatives of the late Mr. James Rawson Carroll, Fellow of the Institute, and for many years a member of the Council. The draft report of Council for 1911 was read, amended, and adopted. It was resolved to nominate Mr. W. H. Lynn, R.H.A., architect, of Belfast, as a fit and proper recipient of the Royal Gold medal for the year 1912, in recognition of his long and distinguished services to architecture.

BACK-TO-BACK HOUSES IN SCOTLAND.

An appeal was brought in the Court of Session last week by the Corporation of Edinburgh against a judgment of the Edinburgh Dean of Guild Court granting a warrant to the Murrayfield Real Estate Company, Ltd., 63 Frederick Street, Edinburgh, to erect four tenements of three storeys each of dwelling-houses at Piersfield Grove, Edinburgh. There were to be four houses on each floor—two to the front and two to the back. The houses to the front were to be separated from the houses to the back by a longitudinal wall in which there were certain doors into a common staircase.

The application was opposed by the Corporation on the ground that the proposed houses were back-to-back houses within the meaning of section 43 of the Housing and Town-Planning Act, 1909, and that the plans did not make sufficient provision for light and ventilation.

Dean of Guild Carter said that the parties and the Court suffered under the great disadvantage of having to consider the terms of an Act which had been made applicable to Scotland, but the language of which was totally inapplicable to Scottish conditions. Having been informed, after inquiry, of what back-to-back houses in England were, the Dean of Guild Court considered that the houses in the present case were not back-to-back houses within the meaning of section 43. They considered, however, that the system of having four houses on each floor, as proposed in the present plans, was objectionable from the point of view of ventilation, because proper ventilation could not be obtained merely by means of the well of the staircase.

The Corporation appealed on the ground that section 43 was applicable to the proposed houses. There was no appearance for the respondents.

The Court of Session on the 1st inst. recalled the judgment of the Dean of Guild, and remitted to him to refuse the warrant. The Corporation did not ask expenses.

Lord Dundas said the houses in the present case might be back-to-back houses although they did not correspond to English back-to-back houses. The phrase "back-to-back houses" was not technical; rather it was one of colloquial meaning. If one looked at the plans of the houses here one should think that they were back-to-back houses. His Lordship did not propose to attempt any definition of what "back-to-back houses" might mean—an attempt which probably wisely had not been made by the Act of Parliament—but looking to the plans it did seem to him clear enough that the front houses and the back houses stood to one another in the relation of back-to-back houses. The only thing in the nature of openings between them was the doors in the common well of the staircase; and then they had it from the Dean of Guild, whom upon matters of practical knowledge and experience they took as final, that the proposed houses were objectionable from the point of view of ventilation. That was just the kind of objection which section 43 desired to have sustained when it prohibited back-to-back houses; and when one read the section in the light of that objection one might reasonably conclude, without attempting any general definition of the phrase, that the proposed buildings were back-to-back houses within the meaning of the section.

The other two Judges concurred.

The Local Government Board, in sanctioning the loan of £4,200 for the erection of twenty working class dwellings at Guildford, express the view that the deficiency will only be partially met by the houses now proposed to be erected.

The District Committee of the Lower Ward of Lanarkshire report that plans were passed during the year for buildings valued at £78,900. This showed an increase of £15,905 over the previous year, and of £22,240 compared with 1909.

The Netherlands *Staatscourant* of November 25 notifies that (1) the provincial authorities of Groningen have decided to erect a hospital for mental diseases at Het Boterdiep, in Groningen, at a cost of £20,833; (2) the provincial authorities of Utrecht have decided to erect a pharmaceutical laboratory at Catharijnesingel, at a cost of £16,500.

The Southport Town Council on Tuesday discussed the municipal buildings scheme, the estimated cost of which is £25,000. Only that part of it which is for the remodelling of the Council chamber to admit the Birkdale councillors was adopted, and the other part was referred back for reconsideration.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

Cheshire.
Bramhall.—Vicarage.
Buglawton.—Parish Church alterations.
Macclesfield.—Workhouse Nurses' Home, Mortuary and Infirmary Extension. Messrs. Whittaker & Bradburn, architects.

Cornwall.
Fowey.—Constitutional Club at Polruan.
Newquay.—Church.
Pavilion on the sea front (£4,250).

Derbyshire.
Derby.—Council School, Nun Street: alterations. Mr. C. B. Sherwin, architect.
Mellor.—Scouts' Drill Hall.
Morton.—Isolation Hospital enlargement.
Staveley.—Mission Church at Marsden Moor.

Devon.
Bideford.—Pumping station in the Cattle Market. Mr. Latham, engineer.
Broadclyst.—Elbury Farm buildings: reconstruction. Messrs. E. H. Harbottle (F.R.I.B.A.) & Son (of Exeter) architects.
Newton Abbot.—(Supplementary to October 13) Secondary School. Mr. P. Morris, A.R.I.B.A., architect.
Okehampton.—Police station.

Durham.
Chester-le-Street.—Forty-two dwelling houses. Mr. J. H. Mole, Council surveyor.

Essex.
Grays.—Palmer's School for girls. Ninety additional places in new class-rooms, also botanical laboratory, teachers' bedrooms, &c. (£2,100). Mr. Shiner, architect.
Ilford.—Aeroplane factory near Hainault Recreation Ground, for Messrs. Handley Page.
Purleigh.—Council School.
Rochford.—Workhouse: common dining-hall for 304 paupers, also kitchen and adjuncts.
Southend-on-Sea.—All Saints' Church, mission buildings and parish institute (£20,000).
Wickford.—Council School.

Gloucestershire.
Cheltenham.—Municipal Offices.

Hampshire.
Eastleigh.—House in the Crescent.
Shops, Leigh Road.
Portsmouth.—Art Gallery.
Southampton.—Salvation Army Hall, St. Mark's Road: reconstruction.

Herefordshire.
Hereford.—Science and Art School alterations (£600).

Isle of Man.
Douglas.—Office block for Master and Police, Victoria Pier. Mr. Blaker, architect.
Port Erin.—House alterations, Athol Park.

Kent.
Ashford, East.—Infectious hospital. Messrs. Miller & Hards, contractors.
Blean.—House in Burlington Drive, Reculver.

Lancashire.
Bolton.—Electricity station at Back-o'th'-Bank. County Borough electrical engineer.
St. Edmund's Church Schools, St. Edmund Street.
Daubhill, New.—Church, Morris Green.
Great Harwood.—Twenty-seven Council cottages. Mr. A. H. Dunkin, Council surveyor.
Lancaster.—Girls' Secondary School.
Manchester.—Workhouse additions, New Bridge Street. Mr. A. J. Murgatroyd, architect.
Church, Burnage.
Technical Institute, Stretford Road, Old Trafford: extension. Messrs. John Bowden & Co., architects.
Milnrow and Tyldesley.—Elementary Schools for 400 and 500 places. Mr. H. Littler (of Preston), county architect.

Lincolnshire.
Cleethorpes.—Six cottage homes (Coronation memorial).
Coningsby.—Conservative Club.
Lincoln.—Carnegie Public Library (£10,000). Professor Reginald Blomfield, A.R.A., V.P.R.I.B.A., architect.
Sleaford, Old.—Church (£3,000). Mr. W. H. Wood, F.R.I.B.A. (of Newcastle-on-Tyne), architect.

Middlesex.
Harrow.—Girls' Secondary School.
Tottenham.—Schools (£150,000).

Norfolk.
Overstrand.—St. Martin's Church: enlargement and restoration.

Northamptonshire.
Geddington.—Non-Provided School: alterations.
Kettering.—Corn Exchange (£1,000).

Northumberland.
Berwick-upon-Tweed.—Primitive Methodist Church.
Haggerston.—Castle restoration.

Nottinghamshire.
Kirklington.—Council School.
Staunton-in-the-Vale.—Church School: alterations and enlargement.
Worksop.—School for about 600 children.

Surrey.
Egham.—Provided School (£10,000).

Sussex.
Bexhill.—Drill Hall.
Brighton.—Brighton-Shoreham Aero Club-house. Mr. T. Garrett, architect.
Horsham.—Offices at the Brewery, Bishopric. Mr. C. H. Burstow, A.R.I.B.A., architect.
House, Compton's Brow Lane. Mr. Burstow, architect.

Worcestershire.
Bournville.—Church, parish hall and vicarage.
Evesham.—Hospital: additional pavilion, &c. Messrs. Epsley & Co., Ltd., contractors.
Worcester.—St. Swithin's Church: additions and alterations. Messrs. Weir & Cogswell (A.R.I.B.A.), architects.

Yorkshire.
Bramley.—Council School: additional 400 places.
Dewsbury.—Infirmary extension. Mr. W. Hanstock (of Batley), architect.
Foston-on-the-Wolds.—Mission Room at Thornton.
Keighley.—Trade and Grammar School extension.
Leeds.—Public Elementary School for about 600 places, Harehills Lane and York Road.
Masham.—Town Hall.
York.—St. Sampson's Church: tower renovation.

WALES.

Abercrave.—Co-operative Society Stores.
Bala-Bangor.—College.
Garnant.—Council School.
Pontlliw.—School. Mr. W. J. Nash, A.R.I.B.A. (of Neath), County Education architect.

SCOTLAND.

Arbroath.—(Supplementary to September 15) Infirmary reconstruction (£8,000). Mr. H. Gavin, architect.
Ayr.—Shop and a Hall, Main Street (£1,800).
Blairgowrie.—Coronation Hall (£3,000 minimum).
Buckhaven.—Cameron Hospital: caretaker's house, &c.
Dundee.—St. John's Church at Cross (£4,000).
School Board: new Harris Academy (£33,000). Also school, Balfour Street: reconstruction.
Dunfermline.—Carnegie Institute (with slipper baths), Nethertoun Broad Street.
College and Medical buildings, adjoining the Carnegie Baths (£20,000).
Thirty-five blocks (over 200 houses) at Patiesmuir. Messrs. Bell & Wilson, architects.
Metal-breaking house in Session Street.
Glasgow.—No. 260 Broad Street, Mile End: additions.
Picture house, Smith Street, Govanhill.
Kirkintilloch.—Parish Church.
Lochee.—Cinematograph Theatre, Anderson's Lane.
Robroyston.—Smallpox hospital.
Pittenweem.—Board School.

Croydon Town Council propose carrying out works during the ensuing winter costing about £35,000, to provide work for the unemployed. The Council have decided to spend £18,000 on a boys' secondary school, and the work will be largely carried out during the winter months.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 30043. Dec. 28, 1910.—Improved machine for mixing concrete, powders, and the like. Francis Johnson, 64 Westcott Street, Hull, and Edgar Smailes, 2 Salmon Avenue, Cottingham Road, Hull. This invention relates to machines for mixing cement, powders and other materials of that kind, in which blades are mounted on a shaft rotable in bearings. The invention has for its object improvements in the mounting of the mixing blades, whereby such blades will give to any undue pressure, and are not liable themselves to be damaged, and in mounting the door which closes the outlet through which the contents of the machine are discharged whereby such door can be readily locked in its closed and its open positions as required. Fig. 1 is a front elevation. Fig. 2 is a plan view with the hopper removed. A body A of U or similar shape in cross section interiorly is provided with ends A^1, A^2 mounted on legs B, B^1. At one side, at about the centre of its length, is an opening, C, for the discharge of the contents of the machine after such contents have been mixed, enclosed at the sides and bottom by a spout-like casing, C^1, and provided with a door, D, swung on a horizontal spindle, D^1, mounted in suitable brackets or bearings, E, E^1, and in other bearings or brackets F, F^1 on the body of the machine. On the spindle D^1 are formed two eccentrics G, G^1, one end of the spindle being provided with a hand-wheel or handle, *d*, by which it can be rotated to a certain extent. The bearings E, E^1 are provided each with a lug or projection d^1, d^2, and the bearings F, F^1 on the machine body have each a notch in the top or a lug *f*, f^1, in which notches or lugs the lugs or projections d^1, d^2, on the brackets or bearings on the door will rest on the door being raised. Two angle pieces J, J^1, are fitted to the inside of the casing C^1, into which the bottom of the door will slide when the door is closed. The shaft K carries curved blades, passing through the body of the machine, and is mounted in bearings L, L^1. A short shaft M is mounted at one end of the machine, having a fast and loose pulley M^1, M^2, and a pinion wheel, M^3, mounted on it, the pinion wheel M^3 gearing with a spur wheel K^1 on the shaft K. The shaft K has metal arms N, N^1, N^2, N^3, in which are pivoted rocking levers O, to which are fitted the curved blades P, P^1. Each rocking lever has a helical spring connected to it, there being four such springs R, one for each rocking lever, the opposite end of each spring being connected to the bracket. As the shaft rotates and carries the blades around in the machine, should any hard substance get between the machine body or casing and the blades, the blades, by their elastic connection to the shaft, will give to the pressure, and move towards the shaft. The hopper S is provided for the materials. November 15, 1911.

FIG. 1.

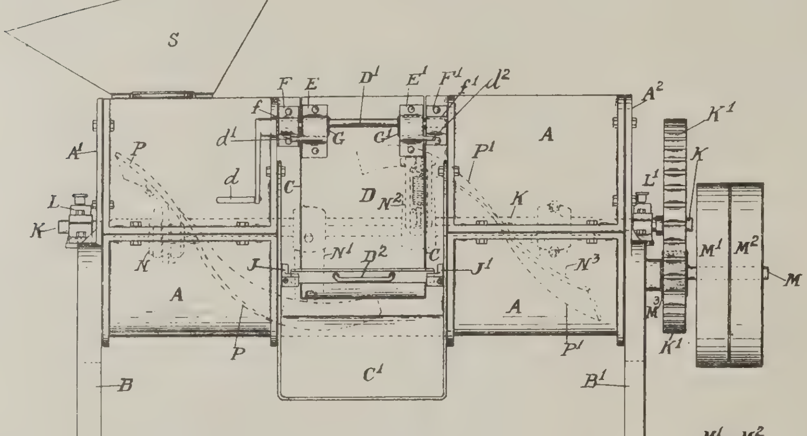
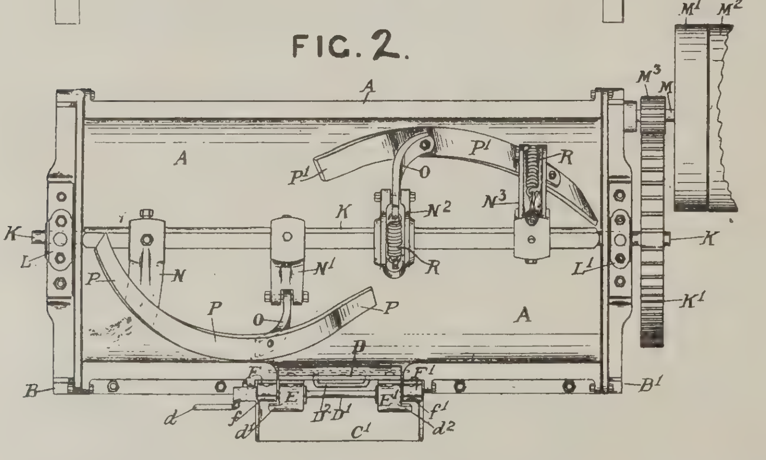


FIG. 2.



No. 27528. Nov. 26, 1910.—Improvements in the reinforcement of columns, ferro-concrete pillars and the like. Robert Thomson, architect, and W. A. Thomson, both of 164 Nithsdale Road, Pollokshields, Glasgow. This invention relates to the reinforcement of columns, ferro-concrete pillars, and the like (piles for example), and has for its object to provide reinforcing means applicable to existing or in new columns such that they may safely take increased loads and be more economically constructed than heretofore. The reinforcing means consist essentially of a series of rings arranged in horizontal planes eccentrically, or spiral windings, arranged eccentrically about the vertical axis of the column embracing a central axial metal core. The reinforcing may conveniently be made out of mild steel rods, a suitable size of rod being three-eighths of an inch diameter. These rings are easily and cheaply bent cold from rods of such length that the ends overlap. The spring in the metal easily allows of these ends being temporarily separated from each other to allow of the ring being slipped sideways over the vertical core. These rings are in series preferably arranged spirally around the core so as to form opposing members, which act together across the centre of the pillar, their distance apart, vertically, being fixed in accordance with the work they have to do. The rings may be embedded in the plastic concrete as it is filled into the temporary encasing mould, or they may first be fixed in position, then the usual shuttering and the concrete be finally run in around them. Fig. 1 is a plan. Fig. 2 an example of a column with the improved reinforcing means arranged about the axial core. Fig. 3 an example of a ring. B is the core. The outline of the column is indicated by dotted lines A, and in fig. 3 the core of the column by dotted lines B. The rings are formed of such length that their ends overlap. They are assembled during the building

FIG. 1.

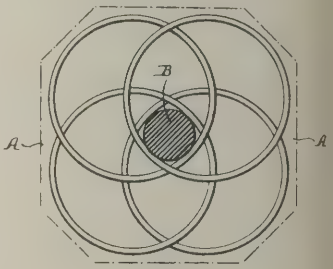


FIG. 2.

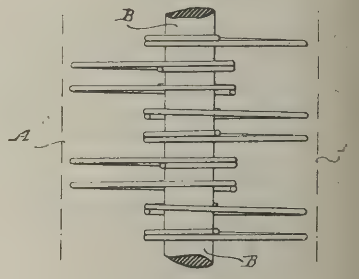
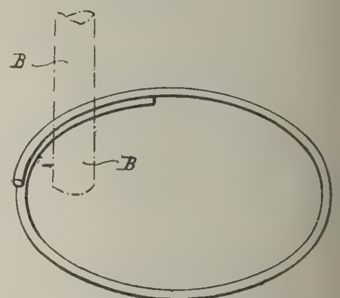


FIG. 3



of the column—usual shuttering being used—in horizontal planes radially about an axial core B one above another. Each ring thus embraces a mass of concrete, which is put in compression by any outward radial strain tending to distort the ring and so reduce its contained area. November 15, 1911.

PATENT SPECIFICATIONS PUBLISHED NOVEMBER 30, 1911.

No. 20492. April 3, 1911.—Thomas Evans, 39 Bath Street, City Road, E.C. An improved atmospheric vapour lamp.

No. 21965. March 3, 1910.—J. B. Durham, Gowanlea, Bannockburn, Stirling. Fire escape.

No. 25857. Nov. 7, 1910.—Richard Campbell, Washington Foundry, Cherry Lane, Walton, Liverpool. Improvements in hoists.

No. 25865. Nov. 7, 1910.—Walter Tietze, 20 Am Ohlau, Ufer, Breslau, Germany. Door-closing device.

No. 26512. Nov. 15, 1910.—J. J. Shedlock, Little Bentley, Essex. Improvements in or relating to the manufacture of artificial fuel.

No. 26667. Nov. 16, 1910.—E. R. Grote, Church Lane, Merton Park, Surrey. Improvements in and relating to electric incandescent lamps.

No. 27528. Nov. 26, 1910.—Robert Thomson, architect, and W. A. Thomson, both of 164 Nithsdale Road, Pollokshields, Glasgow. Improvements in the reinforcement of columns, ferro-concrete pillars, and the like.

No. 29839. Dec. 22, 1910.—A. B. Pescatore, 24 Upper Hamilton Terrace, London. Improvements in and relating to the production of zinc and other metals.

No. 30043. Dec. 28, 1910.—Francis Johnson, 64 Westcott Street, Hull, and Edgar Smailes, 2 Salmon Avenue, Cottingham Road, Hull. Improved machine for mixing concrete, powders, and the like.

No. 521. Jan. 9, 1911.—Samuel Stelling, 33 Russell Street, Stockton-on-Tees, Durham. Improvements in connection with chimney pots and cowls for preventing down draught and increasing the up draught.

No. 699. Jan. 10, 1911.—Alfred Clark, 4 Vicars Hill, Lewisham, and D. C. Pinhey, 13 Grosvenor Road, London. Improvements connected with lift valves specially applicable to sluice valves, penstocks, and other like lift valves.

No. 1234. Jan. 17, 1911.—Jones & Attwood, Ltd., and Walter Jones, both of Titan Works, Amblecote, Stafford. Improvements in apparatus for distributing sewage or sewage effluent upon the surface of a filter bed.

No. 1426. Jan. 19, 1911.—R. H. McHardy, 68 Osbaldeston Road, Stamford Hill, N., and James McHardy, 81 Lancaster Road, W. Improved casement stay, applicable also to analogous purposes.

No. 1611. Jan. 21, 1911.—James Chenhalls, Bollowell, St. Just, R.S.O. Improvements in devices for preventing down draught in chimney pots, chimney flues, ventilating shafts, and the like.

No. 2183. Jan. 28, 1911.—Philip Robinson, trading as Robert Morton & Co., Trent Works, Burton-on-Trent. Improvements in apparatus for adding sterilising and disinfecting agents to water.

No. 2286. Jan. 30, 1911.—J. L. Garsed, Heath Dene, Elland, York. Improvements in vices.

No. 2653. Feb. 2, 1911.—C. W. Kemp, London Works, Newtown Row, Birmingham. Improved glass arrangement for surrounding the illuminating portions of gas and like fittings.

No. 3066. Feb. 7, 1911.—Johann Herzer, Aufsess, Oberfranken, Bavaria. Improvements in automatic fire and like alarms.

No. 3829. Feb. 15, 1911.—Gottfried Wieddmann, Zollikon, nr. Zurich. Improvements in apparatus for dust-sucking and for other purposes.

No. 4145. Feb. 18, 1911.—John Shanks, Tubal Works, Barrhead, Renfrew. Improvements in valve fittings for baths, lavatories, and the like.

No. 5802. March 8, 1911.—A. E. Bishop, 20 Gordon Avenue, St. Margaret's-on-Thames, Twickenham. Improvements in or connected with dust bins.

No. 6264. March 13, 1911.—Henry Hope & Sons, and R. W. Hope, 55 Lionel Street, Birmingham. Improvements in or connected with glazed roofs.

No. 7177. March 22, 1911.—W. E. Lake, 7 Southampton Buildings, W.C. Communication from J. C. Jones, 3146 North Seventeenth Street, Philadelphia, U.S.A. Improvements in water heating and measuring apparatus.

No. 8113. March 31, 1911.—William Clark, 53 Chancery Lane, W.C. Communication from F. H. Clergue, 90 West Street, New York. An improved relief valve.

No. 8325. April 3, 1911.—J. M. Penny, Lake Avenue, and Thomas Ellison, Peter Street, Carleton Place, Carleton, Ontario. Improvements in wrenches.

No. 8793. April 8, 1911.—Reginald Haddon, 32 Bedford Street, Strand. Communication from Artur Duffek, Ulloiut 2, Budapest VIII. An improved machine for clearing dust and other loose dirt from road surfaces.

No. 8854. April 10, 1911.—Iwer Hansen, 96 Friesische Strasse, Flensburg, Germany. Improvements in or relating to suction and force pumps.

No. 9494. April 19, 1911.—Samuel Urmson, 88 Middleton Road, and T. C. Wrigley, 25 Mark Street, Oldham. Improvements in or relating to vacuum cleaning apparatus.

No. 10775. May 4, 1911.—A. E. Spreadbury, 7 St. Michael's Road, Bournemouth. A means or method for the adjustment of portable steps, ladders, trestles, or the like.

No. 11205. May 9, 1911.—J. K. Boczogo, Imre, Hollaki, and Artur Duffek, 2 Ulloiut, Budapest VIII. Improvements in or relating to a process for hardening iron and steel articles.

No. 11396. May 11, 1911.—J. L. Musgrave, and Richard Crittall & Co., Ltd., both of 197 Wardour Street, W. Improved method or installation for heating and cooling buildings.

No. 11713. May 15, 1911.—A. C. Burchett, 40 De Laune Street, New Street, Kennington, S. Improved locking device for the handing ropes of lifts.

No. 11889. May 17, 1911.—R. & W. Wilson & Sons, Ltd., and Charles Clarke, both of 102 Wardour Street, W. Improvements in or relating to refrigerating cabinets, cupboards, and other chambers.

No. 12450. May 23, 1911.—Convention application May 23, 1910. Société "Le Detective," 41 rue du Faubourg, Montmartre, Paris. Improvements in fire alarms.

No. 13698. June 8, 1911.—Convention application February 25, 1911. E. M. Lawrence, 7 Water Street, Manhattan, New York. Improvements in fire extinguishers.

No. 14365. June 16, 1911.—Friedrich Schofer, Waiblingen, nr. Stuttgart. Method of obviating cracking and injurious stresses in combined smoke and ventilating chimneys.

No. 14768. June 21, 1911.—Convention application July 12, 1910. J. R. Kohler, 58 Freygatan, Stockholm. Method of making betulin suitable for the production of coating compositions.

No. 14912. June 26, 1911.—Convention application June 27, 1910. La Soc. An. Française, dite Banque Du Radium, 13 Rue Vignon, Paris. Apparatus for sterilising liquids by means of ultra violet rays.

No. 15297. June 30, 1911.—J. C. Nyholm, 28 Schwanenwik, Hamburg. Improvements in and relating to apparatus for operating sluices, lock-gates, and similar devices.

No. 15371. July 1, 1911.—Convention application July 6, 1910. R. E. Trottier, 84 rue de la Republique, Puteaux, Seine. Improved apparatus for classifying solid materials.

No. 16154. July 12, 1911.—G. F. Rodger, 18 Dillington Road, Barnsley. An improved check valve.

No. 17591. Aug. 2, 1911.—Eugen Frankel, Gymnasialstr, Benthen, O/S, Germany. Improvements in or relating to flushing apparatus.

No. 18141. Aug. 10, 1911.—Emil Barthelmess, 2 Breitestrasse, Neuss a/Rhein. Improvements in grinding or reducing apparatus.

No. 18984. Aug. 24, 1911.—J. S. Pearson & F. S. Pearson, 17 Broxton Road, Liscard, Cheshire. Improvements in water softening and filtering apparatus under pressure.

No. 19104. Aug. 25, 1911.—A. C. Russell, 28 Broughton Road, Thornton Heath. Improvements in the construction of stair treads and the like.

No. 20086. Sept. 11, 1911.—Convention application September 30, 1910. Adolf Donecker, 9 Linden Allee, Jahlachtensee, nr. Berlin. Process for manufacturing weather-proof coloured artificial gravel for garden paths and the like.

No. 20483. Sept. 15, 1911.—Georges Raynaud, Chaussee Jules-Cesar, Beauchamps (Seine et Oise), France. Improvements in and connected with acetylene gas lamps.

No. 21326. Sept. 27, 1911.—Henry Davey, "Conaways," Ewell, Surrey. Automatic sluice or flood gate.

VARIETIES.

The Board of Management of the Chester Infirmary on Tuesday decided to proceed at once with their scheme for the extension and renovation of the infirmary, at a cost of over £25,000. The abandonment by the Chester Town Council of the electricity works as a site for the refuse destructor was reported.

The Evesham Town Council have received the sanction of the Local Government Board to proceed with the scheme for improving and extending the Evesham Sewerage Works. The Board have approved the borrowing of £7,286 for structural work, &c., £1,503 for machinery and distributors, and £300 for ferro-concrete work.

H.M. Consul at Sao Paulo (Mr. D. R. O'Sullivan-Beare) reports that a company has been formed at that place, with a capital of about £333,000, for the purpose of erecting in the city a large hotel with all modern improvements. All material required for the construction and equipment of the hotel may be imported free of duty. The name of the company may be obtained by British manufacturers on application to the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

The Conveners' Committee of the Scottish Exhibition recently held in Glasgow have accepted the following tenders for the material of the exhibition buildings:—Mr. Charles Brand, Dundee, the Palace of Industry, Concert Hall, Fire Station, and certain smaller buildings, £1,740; Mr. John F. Glass, Glasgow, the Kelvin Hall, the Amphitheatre club and restaurants connected with it, £147, the Popular Restaurant £127, and other buildings, making a total price of £575; Mr. James P. Christie, Glasgow, the Palace of Fine Art, £289, and the Palace of History, £130; and Messrs. Jackson & Co., Scotstoun, the Atholl Restaurant at £340.

In view of the demand for houses in Great Harwood, near Blackburn, the District Council have decided to obtain tenders for proposed municipal dwellings without waiting for the sanction of the Local Government Board. The Board held their public inquiry several months ago; but they object to the financial basis of the scheme and to the fact that the plans do not conform to the Council's own by-laws. A movement is on foot for preparing a petition for presentation to Mr. John Burns.

The Director-General of Commercial Intelligence of British India has forwarded to the Board of Trade a copy of the Calcutta Improvement Act, 1911, providing for the improvement and expansion of Calcutta by opening up congested areas, laying out or altering streets, providing open spaces for purposes of ventilation or recreation, demolishing or constructing buildings, &c. A board of trustees is to be set up to carry out the provisions of the Act. The copy of the Act may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

The next ordinary general meeting of the Surveyors' Institution, being the first of the two afternoon meetings arranged for the convenience of country members, will be held in the Lecture Hall of the Institution, 12 Great George Street, S.W., on Monday, 11th inst., when a paper will be read by Mr. W. A. Haviland, entitled "The Burden of Upkeep on Rural Estates and its relief under Section 69 of the Finance Act, 1910." The chair will be taken at five o'clock.

The Commissioners of National Education in Ireland, in their report for the school year 1910-11, call attention to the inadequacy of the grants for the building and improvement of national schoolhouses, and state that in correspondence with the Treasury they had frequently adverted to the fact that many of the existing buildings were so unsuitable and insanitary as to be a source of positive danger to the health of the pupils. The Treasury in April last informed the Commissioners that further provision would be made to enable them to deal with the urgent cases submitted to them to such an extent as would permit of their sanctioning grants by the end of the current financial year (March 31, 1912), to the approximation of £108,000.

The Glasgow Corporation have agreed that the borrowing powers of the Corporation for the purpose of the Municipal Buildings Act, 1878, be increased from £660,000 to £860,000. The additional powers are required for the payment of the purchase price of properties in John Street and George Street recently acquired by the Corporation and to meet the cost of such buildings as the Corporation might resolve to erect upon the land belonging to them on the east side of John Street between Cochrane Street and George Street. The cost of the site (including buildings already acquired) was stated to be £30,000, and the cost of new buildings and furnishings £170,000.

Mr. John Burns, M.P., replying in the House of Commons on Monday to Mr. Sylvester Horne, who asked what pressure was being exercised by the Local Government Board upon the local authorities to insure that all the new colliery districts should be built as required by the Town Planning Act, said:—A conference was held in May last of representatives of the local authorities in the Doncaster district, at which I understand it was decided to be advisable that plans should be prepared of areas suitable for town planning under the Housing and Town Planning Act, 1909, with a view to the preparation of a comprehensive scheme. No definite decision had been come to by the Doncaster Rural District Council at the end of October last to prepare a town planning scheme for any area in their district. I have not lost sight of the matter, or of its importance; but there are considerable difficulties arising in connection with the area in question which must not be under-estimated.

The Manchester City Council on Wednesday approved of a resolution of the Highways and Paving Committee accepting tenders for the construction of main sewerage works in Claremont Road, Bolton Road, and Queen Street, Pendleton, for £4,346, and in Dock Road, Langworthy Road, Liverpool Street, for £16,532.

TRADE NOTES.

A large number of towns in the vicinity of London now possess motor fire engines. Among them may be mentioned Tottenham, Finchley, Harrow, Willesden, Bromley, Chislehurst, Dartford, Merton, Heston and Isleworth. Two more must now be added—namely, Penge and Mitcham; and both have selected the Merryweather petrol-driven motor fire engine, with "Hatfield" reciprocating pump. The decision of the Penge Council was not arrived at until the capabilities of the "Hatfield" design and of a rival engine fitted with the turbine type of pump had been exhaustively compared in a series of tests. The Penge engine will have a pumping capacity of 350 gallons per minute. In the case of Mitcham, a 300-gallon engine has been selected. It is twenty-seven years ago since the Mitcham Fire Brigade obtained their existing horse-drawn steam fire engine from Messrs. Merryweather. It is still in service.

Under the direction of Mr. H. R. Crabb, A.M.I.C.E., borough surveyor, Pembroke, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air inlets, has been applied to the Town Hall, Pembroke.

Actors, authors, and others in the public eye have sometimes an amiable weakness for Press Notices, and these they industriously gather and paste in a special book. But it can be rarely indeed that the verdict is so unanimous as in the case in a sixty-page pamphlet issued by Messrs. Clement Talbot, Ltd., automobile engineers, North Kensington, W., concerning their "Invincible" Talbot cars. In it are collected the opinions of nearly fifty leading papers on the firm's exhibit at the recent Motor Show at Olympia, and with one voice they praise. This is not to be wondered at, for, apart from the improvements in detail shown for the first time, the Talbot cars have all the prestige of an extraordinarily high record of success in open competitions. A copy of the booklet will be sent on application to Messrs. Clement Talbot, Ltd.

Anyone weighed down by the responsibility of selecting Christmas presents may be recommended to call in at the premises of Messrs. Oetzmann & Co., Ltd., in the Hampstead Road, W. As the field of choice is a very wide one, it may be advisable to obtain one or more, at any rate, of their small catalogues before entering, so as to have a definite department to steer for. The choice may range between suites of furniture and a salt-cellar, or a billiard-table and fire-irons.

THE

Architect and Contract Reporter.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

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EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

⁂ *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Banbury.—Jan. 8.—The Town Council invite designs by January 8 for workmen's dwellings to be erected within the borough. Applications for particulars, accompanied by 10s. deposit, which will be returned on receipt of bonâ-fide designs, should be made to Mr. Arthur Stockton, town clerk, Town Hall, Banbury.

Bolton.—Jan. 6.—The Lancashire and Cheshire Miners' Federation invite architects in independent practice within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1s. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton. N.B.—The time for sending in applications and designs has been extended from Dec. 1 to Jan. 6.

Bolton.—The King Edward VII. Memorial Fund Committee invite competitive plans from architects now practising as principals within the county borough of Bolton for the King Edward VII. Memorial Nurses' Home proposed to be erected at the Bolton Infirmary. Plan of the site and instructions may be obtained upon payment of £1 1s., which sum will be returned to the competitors provided they shall have sent in *bona fide* plans and particulars and shall have returned all documents, plans, &c. Mr. Samuel Parker, hon. secretary of the Committee, Town Hall, Bolton.

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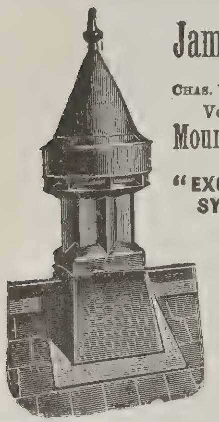

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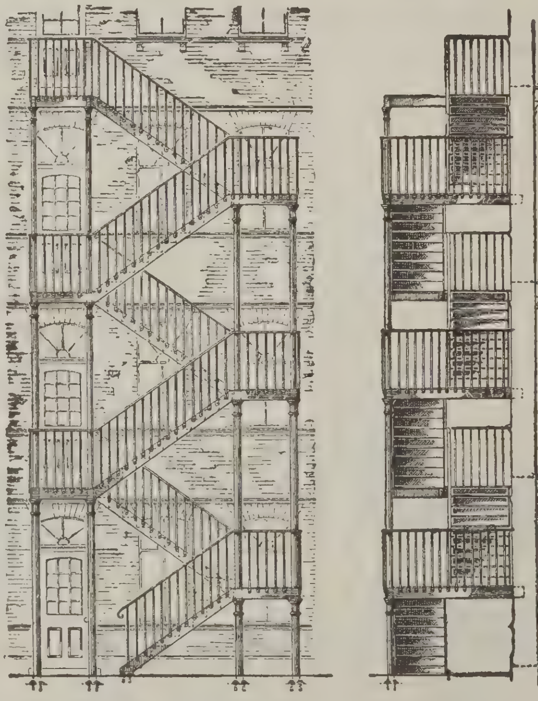

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Cosford.—Dec. 28.—The Rural District Council are prepared to receive plans for the erection of cottages throughout their district, where required. The plans should show the class of cottage, and are to state the probable cost of erection either in rows of six or in pairs. Mr. Alfred Newman, Clerk to the Council, Hadleigh, Suffolk.

Hastings.—Dec. 31.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1*s*. deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

Ireland.—Jan. 9.—The Magherafelt Technical Instruction Committee invite competitive designs for a technical school, proposed to be erected in Magherafelt, the total expenditure, including provision of sewerage and water supply, not to exceed £1,200. Mr. W. D. Cousins, County Technical Office, Courthouse, Coleraine.

London.—Feb. 17.—The Port of London Authority invite preliminary sketch designs in competition for head offices proposed to be erected in Trinity Square, and for the laying out of the remainder of the land as a building site. From the sketches submitted the authors of not more than six designs will be selected to submit designs in a final competition at an honorarium of 200 guineas each, the Authority reserving to themselves the right, on the advice of their assessor, to invite not more than six other architects to send designs in the final competition. The assessor appointed is Sir Aston Webb, R.A. Conditions of the competition, with full particulars of the accommodation required, plan of the site, and photographs of the adjoining buildings, can be obtained on application, on payment of £1 1*s*., which sum will be refunded on receipt of a bona-fide design, or on the return of the particulars within three weeks, to The Secretary, Port of London Authority, 109 Leadenhall Street, E.C.

Rochdale.—Dec. 22.—The Board of Management of the Infirmary invite architects practising in Rochdale prior to January 1, 1911, to submit plans, designs, and estimates for extending the present buildings. Conditions of competition, with other information, together with instructions to architects, can be obtained on application to the secretary. An assessor has been appointed by the committee. Mr. T. Elvyn Kershaw, secretary, Secretary's Office, the Infirmary, Rochdale.

Spennymoor.—Jan. 9.—The Urban District Council invite competitive plans and designs for a public hall, market, and offices, &c. Particulars may be obtained on payment of a deposit of £2 2*s*., which will be returned on receipt of a *bona fide* design. Premiums of £50, £25, and £10 are offered. Mr. F. Badcock, clerk, Council Offices, 3 James Street, Spennymoor. (See advertisement.)

Stafford.—Jan. 6.—The Corporation invite designs for a public library. An assessor has been appointed. Send £1 deposit, which will be returned on receipt of a bona-fide design, or the return of the conditions, &c., within one month of receipt. Mr. William Plant, A.M.Inst.C.E., borough engineer, Borough Hall, Stafford.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

CONTRACTS OPEN.

Ashford.—Dec. 18.—For the builder's work in connection with the heating of the cloakroom and the erection of a roof over portion of open yard to form a cycle shed, required to be carried out at the Ashford County School for Girls, Kent. Mr. J. Quick, correspondent, Technical Institute, Folkestone.

Barking.—Dec. 22.—For the works comprised in the extension of the electricity works, East Street. Deposit £2 2*s*. Mr. C. F. Dawson, surveyor, Public Offices, Barking, Essex.

Barrow-in-Furness.—Dec. 20.—For the construction of conveniences in Hindpool Road and Salthouse Road, and the extension of the existing convenience in Church Street. Borough Engineer and Surveyor, Town Hall, Barrow-in-Furness.

Beckenham.—Dec. 18.—For certain works of decoration and repairs to be carried out at the public elementary schools during the Christmas holidays. Deposit £1. Mr. John A. Angell, surveyor, Council Offices, Beckenham.

Bexley.—Jan. 5.—For erection of a Council school to accommodate 250 scholars at Bexley, Welling, Kent. Send names and £1 deposit by Dec. 18 to Mr. F. W. Crook, secretary, Caxton House, Westminster, S.W.

Birkdale.—Dec. 28.—For erection of caretaker's lodge, cricket pavilion, and bowls-house at the Bedford Road Recreation Ground. Deposit 30*s*. The Town Hall, Birkdale, Lancs.

Birmingham.—Dec. 22.—For the construction of a subway at Birmingham new parcel office, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s*. Mr. J. Tosh, H.M. Office of Works, Pinfold Street, Birmingham, and H.M. Office of Works, &c., Storey's Gate, S.W.

Bradford.—Dec. 20.—For (*a*) building a switch-room and an air filtration chamber at Valley Road Electricity Works (Contract "R. 18"), and (*b*) supplying and erecting the constructional iron and steel work for the foregoing buildings (Contract "R. 19"), for the Corporation. Deposit £1 1*s*. each. Mr. T. Roles, city electrical engineer and manager, Electricity Offices, Town Hall, Bradford.

Broadclyst.—Dec. 30.—For rebuilding Elbury farm buildings, in the parish of Broadclyst, Devon. Messrs. E. H. Harbottle & Son, architects, County Chambers, Exeter.

Bromley.—Dec. 19.—For erection of a women's convenience on the Martin's Hill recreation ground. Deposit £1. The Borough Engineer's office, Municipal Offices, Bromley, Kent.

Carlisle.—Dec. 18.—The Board of Guardians invite provisional tenders (subject to the sanction of the Local Government Board) for erection of nurses' home and pavilions for consumptives at Fusehill Workhouse. Send names by Dec. 18 to Mr. G. Armstrong, architect, 24 Bank Street, Carlisle.

Dorchester.—Dec. 19.—For the construction of sheep pens and concrete base for temporary sheep pens at the Cattle Market. The Borough Engineer, Dorchester.

East Ham.—Dec. 18.—For the demolition of the old vicarage building adjoining Vicarage Lane School and for the removal of the old materials resulting from such demolition, for the Education Committee. Mr. H. C. Padgett, secretary, Town Hall, East Ham.

Edenbridge.—Jan. 5.—For erection of a special subjects building at Edenbridge, Kent. Send names and £1 deposit by Dec. 18 to Mr. F. W. Crook, secretary, Caxton House, Westminster, S.W.

Edinburgh.—Dec. 18.—For erection of the fire-resisting floors, &c., in connection with the alterations and extension of the central telephone exchange, Rose Street, Edinburgh, for the Commissioners of H.M. Works and Public Buildings. Any system of construction may be adopted for the work. Deposit £1. H.M. Office of Works, 3 Parliament Square, Edinburgh, or at H.M. Office of Works, G.P.O., Glasgow.

Esh Winning.—Dec. 18.—For erection of new printing premises. Messrs M. D. Elliott & Sons, printers, Durham Road, Esh Winning, Durham.

Fakenham.—Jan. 11.—For erection of new school at Fakenham and for the erection of cookery and manual instruction rooms on the same site, for the Norfolk Education Committee. Send names and 1*l*. 1*s*. deposit by Dec. 23 to Mr. H. J. Green, architect, Castle Meadow, Norwich, and Paradise Chambers, King's Lynn.

Great Yarmouth.—Dec. 20.—For erection of a boys' school at Cobholm Island for 440 children. The Borough Surveyor, Town Hall, Great Yarmouth.

Guildford.—Dec. 29.—For the following works, &c., for Guildford Gas Light and Coke Co.—viz.: (*a*) brickwork and and slating for the new coal store; (*b*) supply of materials for (excluding steelwork) and erection of an exhauster house; (*c*) tiling of engine-room in basement of present retort house. Deposit £1 1*s*. Mr. P. C. Cleasby, Gasworks, Guildford.

Guildford.—Jan. 6.—For the erection of 20 cottages in Cline Road. Deposit £2 2*s*. Mr. A. D. Jenkins, Town Clerk, Bridge Street, Guildford, Surrey.

Haslington.—Dec. 18.—For erection of nine single dwelling-houses and nine sets of farm buildings on the Haslington Estate, near Crewe. Deposit £1. The County Estate Office, 49 Northgate Street, Chester, and the Estate Office, 137 Nantwich Road, Crewe.

Houghton-le-Spring (Durham).—Dec. 20.—For erection of two wards, with lavatories annexed, and three nurses' rooms, also corridors to connect same with existing buildings, for the Rural District Council. Deposit £1 1*s*. Mr. W. Morley, sanitary surveyor, Le Spring House, Houghton-le-Spring, Durham.

Hounslow.—Dec. 23.—For constructing a hospital and other work at Staines Road, Hounslow. Deposit £1 1*s*. Mr. H. R. Peake, 213 High Street, Hounslow.

Huddersfield.—Dec. 23.—For the various works required in erection of 38 workmen's tenement dwellings, Wakefield Road, Mold Green, for the Corporation. Mr. K. F. Campbell, M.Inst.C.E., borough engineer and surveyor, 1 Peel Street.

Ireland.—Dec. 23.—For building a rectory at Ballywalter, co. Down. Mr. William J. Fennell, F.R.I.B.A., architect, 2 Wellington Place, Belfast.

Keighley.—Dec. 23.—For extensions to the Technical Institute. Send names by Dec. 23 to Messrs W. H. & A. Sugden, architects, North Street, Keighley.

Kendal.—Dec. 22.—For the whole or separate artificers' works required in constructing the Allen Technical Institute and Museum on the Albert Buildings site. Mr. S. Shaw, F.R.I.B.A., architect, Kendal.

Loose.—Jan. 8.—For erection of a Council school to accommodate 400 scholars, at Loose, Kent. Send names and £1 deposit by Dec. 18 to Mr. F. W. Crook, secretary, Caxton House, Westminster, S.W.

London.—Dec. 19.—For the construction of a weighbridge pit and the erection of a corrugated iron office at the sewage works, Warple Way, Acton. The Surveyor, Council Offices, Winchester Street, Acton.

London.—Jan. 10.—The Guardians of the Poor of the Parish of St. Giles, Camberwell, invite tenders for the erection of additional accommodation for nurses at their Workhouse, Constance Road, East Dulwich, S.E. Deposit £2 2*s*. Mr. A. E. Mullins, architect, 48 Peckham Road, Camberwell, S.E.

Macclesfield.—Dec. 23.—For erection at the workhouse of a nurses' home, mortuary, and an extension of the infirmary. Deposit £1 1*s*. Messrs. Whittaker & Bradburn, 19 King Edward Street, Macclesfield.

Manchester.—Jan. 6.—For the following work, &c., for the Manchester Education Committee—viz.: (1) erection of the municipal school of domestic economy, High Street, Chorlton-on-Medlock (deposit £2 2*s*.); (2) supply of red terra cotta (deposit £1 1*s*.); and (3) supply of buff terra cotta in connection therewith (deposit £1 1*s*.). The Education Offices, Deansgate, Manchester.

Milborne St. Andrew (Dorset).—Dec. 22.—For alterations to the County Boys' Home Industrial School. The County Boys' Home, Milborne St. Andrew, Dorset, and Messrs. Fletcher, Son & Brett, Wimborne.

Milnrow.—Jan. 5.—For erection of an elementary school at Milnrow, near Rochdale, to accommodate 400 children, for the Lancashire Education Committee. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Newquay.—Dec. 21.—For erecting a classroom, cloakroom, &c., at the Newquay Council School, Cornwall. Mr. B. C. Andrew, architect to the committee, Biddick's Court, St. Austell.

Oldham.—Dec. 20.—For the builders' work required to be done in erection and completion of a number of lock-up shops adjoining the Victoria Market Hall. The Borough Surveyor's Office.

Old Trafford.—Dec. 18.—For the extension of the technical institute, Stretford Road, for the Stretford Education Authority. Deposit £3 3*s*. Messrs. J. Bowden & Co., architects, 14 Ridgefield, Manchester.

Stevenage.—Dec. 18.—For erection of a fire station. Deposit 10*s*. 6*d*. Mr. W. O. Times, clerk, Council offices, Stevenage, Herts.

Stockport.—Dec. 19.—For construction of butchery department, Brinksway branch, for the Stockport Industrial and Equitable Co-operative Society, Ltd. Deposit 10*s*. 6*d*. Messrs. Wrathmell & Blackshaw, architects, Queen's Buildings, St. Peter's Square, Stockport.

Storrington (Sussex).—Dec. 26.—For proposed alterations and additions to the Council School, for the West Sussex and Chichester Joint Education Committee. Deposit £1 1*s*. Mr. H. P. Roberts, A.R.I.B.A., county education architect, Thurloe House, High Street, Worthing.

Tyldesley.—Dec. 20.—For the erection of an elementary Council School to accommodate 500 scholars. Deposit £2. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

Wales.—Dec. 20.—For the erection of 18 (more or less) houses on the Tir Merchant estate, Bedwas Road, Caerphilly, for the Tir Merchant No. 1 Building Club. Messrs. T. E. Richards & Kaye, architects, Pontypridd and Cardiff.

Wales.—Dec. 21.—For erection of 42 houses at Seven Sisters, near Neath, for the Bryndulais Building Club. Mr. J. C. Rees, M.S.A., Parade Chambers, Neath.

Wales.—Dec. 21.—For work to be done to Newport House, Treharris, for the Workmen's Co-operative Society. Mr. W. Dowdeswell, M.S.A., architect, Treharris.

Wales.—Dec. 22.—For erection of a new farmhouse and buildings forming a new homestead at Henfryn, Caersws, also for carrying out additions and alterations to the existing dwelling-house and buildings at Henfryn, for the Montgomeryshire County Council. Mr. P. Wilson-Jones, F.A.I., county agent, Newtown.

Wales.—Jan. 5.—For the erection of a culvert bridge and wing walls at Aberporth, for the Cardigan Rural District Council. Mr. D. Davies, clerk, Cardigan.

Wales.—Jan. 5.—For the following works, for the Breconshire Education Committee—namely: Crickhowell Council School, erection of cloakrooms and sundry other alterations to the existing building; Llanganten Council School, addition of class room (32 places), cloakrooms, &c., and sundry alterations to the existing building; Talgarth Council School, erection of girls' cloakroom and other works. Mr. C. W. Best, surveyor to the committee, County Hall, Brecon.

Wales.—Jan. 8.—For erection of a Council school building at St. Ishmaels, in the county of Pembroke. Mr. D. E. Thomas, architect, 17 Victoria Place, Haverfordwest.

Wallasey (Cheshire).—Dec. 18.—For the erection of shelter and bowl-house, North Seacombe Recreation Ground, Demesne Street, Seacombe, for the Corporation. Deposit £1. Mr. W. H. Travers, A.M.I.C.E., borough engineer and surveyor, 18 Falkland Road, Egremont, Wallasey.

Walthamstow.—Jan. 11.—For erection of a county high school for 300 girls at Church Hill, Walthamstow. Deposit £5. Mr. C. J. Dawson, F.R.I.B.A., architect, 11 Cranbrook Road, Ilford, Essex.

Warrington.—Dec. 18.—For erection of a bathroom to 72 Mersey Street, for the Finance and Estates Committee. The Borough Surveyor, Town Hall, Warrington.

TENDERS.

HAREFIELD.

For the erection of a factory building for Bell's United Asbestos Co. Mr. Arthur C. Russell, architect, 13 Basinghall Street, E.C.

Turnbull & Son	£3,995	0	0
Fassnidge & Co.	3,936	0	0
Battley, Sons & Holness	3,890	0	0
Roome & Co.	3,887	0	0
Leng	3,869	0	0
Marsland & Son	3,865	0	0
Greenwood	3,828	0	0
Groves	3,820	0	0
Mills & Sons	3,789	0	0
Sabey & Co.	3,780	0	0
A. & B. Hanson (*accepted*)	3,737	0	0
Kearley	3,670	0	0

Contract to be completed in eight weeks.

LONDON.

For the enlargement of the Cormont Road School, Brixton (384 places), for the London County Council.

Rice & Son	£6,018	0	0
Courtney & Fairbairn	5,995	0	0
Parsons	5,937	1	8
Garrett & Son	5,898	0	0
King & Son	5,845	0	0
Appleby & Sons	5,510	0	0
Akers & Co.	5,435	0	0
Galbraith Bros.	5,391	0	6
Rowley Bros.	5,359	0	0
J. & C. Bowyer, Upper Norwood (*recommended*)	5,256	0	0

NORBURY.

For erection of a public elementary school at Stanford Road. Mr. H. Carter-Pegg, F.R.I.B.A., architect, Thornton Heath.

Greenwood & Sons	£14,600	0	0
Ingleton	13,957	0	0
Lawrence & Sons	13,735	0	0
Foster & Dicksee	13,531	0	0
Longley & Co.	12,988	0	0
Lawrence & Son	12,944	0	0
Akers & Co.	12,920	0	0
McCarthy E. Fitt	12,872	0	0
Grace & Marsh	12,680	0	0
Everitt	12,650	0	0
Blake	12,650	0	0
Cook & Sons	12,577	0	0
Drever	12,447	0	0
Smith & Sons	12,263	0	0
Moss	12,227	10	0
Smith & Sons	12,221	0	0
Saunders, Croydon (*recommended*)	12,100	0	0

READING.

For the construction of a concrete bathing place, together with campsheathing, footbridges, buildings, galvanised iron screen fences, and other works in connection therewith, at Coley, Reading. Mr. J. Bowen, A.M.I.C.E., borough enginer and surveyor, Reading.

Jones & Son	£2,107	0	0
Pedrette	2,081	0	0
Allen & Long	1,998	0	0
Mowlem & Co.	1,989	0	0
McCarthy E. Fitt, Reading (*accepted*)	1,685	0	0
Catley	1,630	0	0

STANWELL.

For erection of a boys' home upon their land adjoining the union workhouse in Stanwell, Middlesex, for the Guardians of Staines Union. Mr. G. W. Manning, L.R.I.B.A., architect, Ashford, Middlesex.

Wright & Sons	£2,700	0	0
Harrison & Sons	2,657	0	0
Fassnidge & Sons	2,652	0	0
Lounde	2,628	0	0
Higgs	2,474	0	0
Lane & Sons	2,460	0	0
Burfoot & Sons	2,339	0	0
A. & B. Hansom	2,275	0	0
Wilkinson	2,274	0	0
Hawkins & Co., Ashford (*accepted*)	2,170	0	0
Love & Co.	2,118	0	0

TORQUAY.

For erection of Homelands Council School. Messrs. E. Appleton & Son, architects, Torquay.

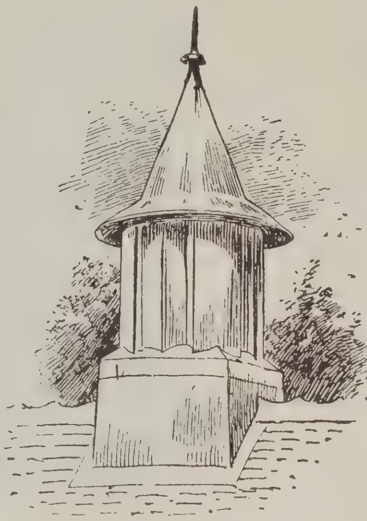
Coles Bros.	£7,728	7	11
Vanstone & Sons	6,989	0	0
Coles	6,835	10	0
Wilkins & Sons	6,687	0	0
Shellabear & Son	6,656	0	0
Blake	6,640	0	0
Tursland	6,580	0	0
Wakeham Bros.	6,452	0	0
Narracott	6,436	15	2
Bovey & Son	6,397	0	0
Pollard & Co.	6,321	0	0
Pollard & Son	6,300	0	0
Pittard & Son	6,249	0	0
Watson & Son	6,235	0	0
Jackman	6,232	0	0
Yeo & Sons (*accepted*)	5,994	0	0

TRADE NOTES.

Messrs. Kershaw, Brassington & Co., Lancaster and Settle, have been favoured with an order for ventilating Dallas Road Schools, Lancaster, from the Corporation. The work is now in progress, and open to inspection under the surveyor, Mr. A. G. Bradshaw.

How many thousands of London's buildings are rendered unsightly by the hideous contrivances which do duty for chimney pots! In some instances, otherwise fine dwellings present a shabby and dilapidated picture when the eye wanders to the distorted and broken "tin pot" apologies for chimney pots. Fortunately a desire is growing to remedy this defect. Be the building of stone, terra-cotta, or brick, chimney pots of pleasing design in buff terra-cotta or salt glaze are gaining great favour, not only because of the splendid finish they give, but chiefly for their primary object, which is the curing of smoky chimneys, to say nothing of their value as ventilators in summer time. Ninety per cent. of cures is something to be proud of, and the Patent Chimney Pot Co., Ltd., of 105 Albion Street, Leeds, the makers of the "Champion," well deserve the response which they continue to receive at home and abroad for so valuable and well tried an invention.

The diagram here given illustrates the latest design for Boyle's patent "air-pump" ventilator. It is claimed for it that it possesses double the extracting power of earlier forms, while it is only one-half the price. It is strongly made of the best cold rolled galvanised steel, which is afterwards painted. This design, which is numbered 175B, is another addition to the long list of successes which have fallen to Messrs. Robert Boyle & Son, 64 Holborn Viaduct, E.C., and 110 Bothwell Street, Glasgow.



The steady progress made by "Ceresit"—the patent waterproofing material for brick, stone and concrete structures—since its introduction into this country less than two years ago is sure evidence that the claims of its sponsors, the British Ceresit Waterproofing Co., Ltd., of 315 Princes Mansions, Victoria Street, S.W., are well founded. It is being used by H.M. Office of Works, the War Office, the leading railway companies, and a large number of public bodies. The photograph here produced is of the Gainsborough Hospital, in North Lincolnshire, the architect for which, Mr. W. Eyre, specified the use of "Ceresit" with a view of making the roof absolutely waterproof. The present opportunity may be taken to impress on all interested the fact that "Ceresit" is not a "paint." It is used only in combination with sand and cement, and a rendering of these materials from $\frac{3}{4}$ of an inch to 1 inch in depth will keep out all wet and moisture, even under a pressure of 50 lbs. to the square inch.

SELECTED DESIGN FOR NEW LI

LONDON ASSOCIATION OF MASTER STONEMASONS.

The third annual dinner of the London Association of Master Stonemasons was held at Cannon Street Hotel, E.C., on the 12th instant. The chair was taken by Mr. Fred Corben, president. Among those present were Mr. F. T. Shadbolt (Master of the Worshipful Company of Masons), Mr. Gerald C. Horsley, F.R.I.B.A. (President of the A.A.), Mr. G. Bird Godson (President of the London Master Builders' Association), Mr. A. L. Blow (Past-Master of the Worshipful Company of Masons), Mr. C. Stanley Peach, F.R.I.B.A., Mr. Stephen Collins, M.P., J.P., Mr. Harold A. Woodington, A.R.I.B.A., Mr. T. Sturge Cotterell, J.P., Mr. R. H. Weymouth, F.R.I.B.A., Mr. A. H. Ryan-Tenison, F.R.I.B.A., and Mr. Walpole Collins, hon. secretary.

After the loyal toasts had been musically honoured, Mr. Stephen Collins, M.P., J.P., proposed "The City Companies," tracing their growth from the old guilds until the present day.

Mr. F. T. Shadbolt (Master of the Worshipful Company of Masons) in replying to the toast, said the origin of the masons was lost in antiquity. It was regrettable that the custom of apprenticeship had not been maintained by which the boy who joined at fourteen was turned out a fully-qualified workman at the age of twenty-one. The Masons' Company had been very powerful at various times since its formation about 1420, though it was only a small company now. Sir Christopher Wren was a member, and so were Thomas Strong and Edward Strong, who carried out the work.

Mr. Fred Corben, the President, proposed "The Association." While recently in Rome he had, he said, been greatly impressed by the Colosseum. The structure was a magnificent example of the durability of stone. Furthermore, it showed that when once stone had left the mason's hands and found its proper position in a building, it was practically of no value whatever for any other purpose. When the power of Rome declined the authorities raised money by tearing out the bronze clamps between each block. The large holes so caused are to be seen all over the surface. What would have happened if the stone had been worth pulling down? The Association had been spending considerable energy in endeavouring to squash a contract clause the effect of which would be to prevent builders from sub-letting their stonework. They, as a body, were essentially sub-contractors. Why there seemed to be a certain amount of odium attaching to that word it was difficult to say. To his mind it was wrong. Modern methods of stone working necessitated the putting down of such expensive machinery that the majority of builders would rather not do it. But the master mason is so situated that if he receives the sub-contract he can get it done in the best possible way. Their Association argued that no one was better fitted to carry out stonework than the man who had given his life to the trade. They considered they had a grievance in that clause, and they appealed for support in their contention that they had a right to do this stonework under a sub-contract. Prices to-day were even still lower than they were twelve months ago, notwithstanding the fact that prices had been raised by the quarry owners, and notwithstanding the Insurance Bill. The present prices were the lowest they had ever touched in the past twenty-five years. Outside competition had something to do with it. But he believed that anything artificial would never take the place of real stone, and he also believed that an architect could get a good Bath stone front for the same price as he paid for the artificial.

Mr. F. J. Barnes, C.C., in proposing "The Architects and Surveyors," said they would have to go beyong the cradle of civilisation to find a time when architects were not. There never had been a period when the architect was so appreciated as at the present day, because his problems had never been so complex. The surveyors were the "handy men."

Mr. Gerald C. Horsley, F.R.I.B.A., in replying for the architects, remarked that amongst the building crafts there was none more ancient or more distinguished than the craft of the mason. During the passage of the centuries the dividing line between the art of fine masonry and the fine art of architecture had always been a thin one, while the sympathy between the two has been of the fullest and most practical kind. Some of the ablest sculptors the world has seen began life in a mason's yard. Thus the mason's craft is the *fons et origo* of many sublime manifestations in art. No one could survey the mediæval cathedrals or some of the ancient temples without being conscious that the sculptors and architects of those

RT GALLERY, MANCHESTER.

[By courtesy of *The Manchester Guardian.*

days were in many cases the master masons. The mason of some centuries ago must have had much more creative and artistic instinct than at present, and he was able to grasp and carry out the design of the master mind without the elaborate drawings now necessary. This to some extent proves that the ordinary craftsman has now become more mechanical. In St. Paul's Cathedral, though first place in honours is given to the great architect who planned and designed it, yet all would recognise that the masons employed there knew their work; yet they must have carried it out without the aid of such elaborate drawings as they had nowadays. An architect would be much aided in his work if the craftsmen working under him were more highly trained. The aim then should surely be to re-inspire the artistic and creative insight in the young mason, while at the same time to give him a thorough technical education so that he should understand any design submitted to him, first through his intelligence, and then through his technical skill. Support ought, therefore, to be given to the schools and classes for the training of a young mason in the higher branches of his craft; for instance, in the setting out of difficult problems of masonry such as domes, vaultings, covings, spiral staircases, &c. Such special work as this, with some study of the rudiments of architecture, in order better to grasp the meaning of drawings, should be undertaken by all young craftsmen in the schools. Nor would this interfere with the admirable apprenticeship system—on the contrary, it would be in addition to it. The higher and more thorough this training is, the more grateful will architects be; for the architect thoroughly acknowledges and comprehends that the success of his design largely rests with the stonemason, and that what ministers to the honour and progress of one art must minister to the honour and progress of the other.

Mr. W. A. Haskins, F.S.I., responded for the surveyors. Stonemasons and quantity surveyors were, he said, growing more and more into touch. While believing that the English system of including the different building contracts under one contractor to be the best one, he did consider that the way the stonemasons were treated was very bad indeed, and it was a wonder to him why they permitted it to exist. Stonemasons now occupied a most insignificant position, and were not even recognised as sub-contractors. It rested with them to change that condition of affairs, and to see that architects treated them on the same footing as the other sub-contractors who received their instructions direct. They would have to make themselves heard more, and to knock on the doors of the architects.

Mr. C. W. Courtenay, J.P., proposed "The Builders and Contractors," and Mr. G. Bird Godson, who responded, said that the word "unity" had hitherto been left out of the speeches, though it ought to be a password. There would come a time when they would find it absolutely necessary to have unity. Possibly there would be trouble in the near future in the building trades, and they would require unity, not for the purpose of oppressing the weak, but to resist the strong. He felt sure that if any unreasonable demands should be made, there would be all the unity that was necessary between the London Master Builders' Association and the London Association of Master Stonemasons.

Mr. T. Sturge Cotterell, J.P., proposed "The Visitors," and Mr. Alexander Ritchie, J.P., responded.

The toast of "The President" was given by Mr. Frank Mortimer, and, after being musically honoured, was replied to by Mr. Fred Corben.

A musical entertainment was gone through.

Mr. Walter Brierly has prepared plans for the erection of a new mansion on the site of "Zion Hill," near Thirsk.

The Royal Institute of British Architects at their business meeting on the 4th inst. elected five Fellows, fifty-six Associates, forty-three Licentiates, and two Honorary Associates.

The Senate of the University of London on Wednesday were informed that a gentleman who desired for the present to remain anonymous has offered to erect at University College "a building for (*a*) the combined School of Architecture (resulting from the amalgamation of the schools at present separately conducted at University College and King's College), together with the following, so far as a sum of £30,000 will suffice, viz.:—(*b*) studies for the teaching of sculpture and the rearrangement of the School of Fine Art, and (*c*) the Department of Applied Statistics, including the Laboratory of Eugenics."

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

Berkshire.
Wokingham.—Cottage, Gipsy Lane.
Guardians' Children's Scattered Homes, Oxford Road.
"High Close" and "Tithe Barn": additions.

Cheshire.
Macclesfield.—Eleven houses, Ryle Street. Mr. O. P. Milne (of London), architect.
Runcorn.—Alterations at Dutton Lodge for Guardians' Children's Homes.

Cornwall.
Fraddon.—Bungalow for Mr. J. Bullock.
Dwelling house for Mr. J. Harris.
Hayle.—Sugar-beet factory.
Newquay.—House for Cornish Hotels Co., Ltd. Messrs. Cowell & Cowell, architects.
Perranporth.—Royal Cornwall Infirmary: Women's Convalescent Home (£1,500).
Redruth.—St. Andrew's Church and Schoolroom: enlargement.
St. Germans.—Workmen's dwellings.

Cumberland.
Flimby.—Infants' School, and remodelling existing premises for a mixed school (£3,750).
Longtown.—Slaughter-house, Albert Street.

Derbyshire.
Chesterfield.—Mission Church, Derby Lane (500 places).
Christ Church, Stonegravels: extension for a nave (£2,000).
St. Thomas's Mission Church, Brampton.
Ilkeston.—Secondary School.

Devon.
Bampton.—National School, Brook Street: alterations.
Ivybridge.—Vicarage.
Torquay.—Provided School.

Dorset.
Parkstone.—Courthill School: additions.

Durham.
Durham.—Three dwelling houses at Earl's House Industrial School. Mr. W. Rushworth, F.R.I.B.A., County Education architect.
Church and church buildings (£4,000).
Hetton-le-Hole.—Three houses, Derwent Street.

Essex.
Bocking.—Pair of workmen's cottages.
Romford.—Fifteen houses in Brooklands, Essex, Forest and Mawney Roads.

Hampshire.
Bournemouth.—The Cricketers' Hotel, Windham Road: additions.
Two houses, Pinecliff and Talbot Avenues.
Twenty-one houses in Cromer, Frederica, Green, Lowther, Maxwell, Milton, Moorfield, Queen's Park, St. Anthony, St. John's and Spurgeon Roads.
Four pairs of houses in Stewart and Wheaton Roads.
Five houses at corners of Berkeley, Brownen, Hankinson, Linwood and Stirling Roads and Talbot Avenue.
Brockenhurst.—Council Schools: enlargement.
Gosport.—Church, Whitworth Road.
Milton.—Elementary School (£3,000).
Petersfield.—Isolation Hospital: extension. Mr. H. T. Keates, architect.
Rectory, Borough Road.
Portsmouth.—Church.
Southampton.—Art Gallery.
Southbourne-on-Sea.—Seven shops.
Winchester.—Guardians' Nurses' Home and Maternity Wards.

Kent.
Dartford.—Carnegie Public Library.
Dover.—Four hundred cottages for the Kent Collieries Co., Ltd., Shakespeare Cliff.
Loose.—Council School (400 places). Mr. W. H. Robinson (of Whitstable-on-Sea), Kent Education architect.
Sevenoaks.—Four houses in Bradbourne and Bradbourne Park Roads.

Lancashire.
Bolton.—Sixteen houses, Georgina Street, Hulton.
Two houses, Kenilworth Square, Smithills.
Middlebrook Mill, Gilnow Lane: additions.
Messrs. Ryder's Works, Folds Road: additions.
Congregational Church Sunday School, Derby Street: extensions.
Manchester.—Art Gallery (£250,000). Messrs. Crouch, Butler & Savage (of Birmingham), architects.

Leicestershire.
Market Harborough.—Pytchley Autocar Co.'s Garage, Leicester Road: additions.
House, Gardiner Street.
Laundry, Adam and Eve Street.

Lincolnshire.
Gainsborough.—Wesleyan Chapel, Ropery Road (£2,350).
Healing.—Church Institute.
Lincoln.—Seven houses, South Park.
Eight houses, Burton Road.
Eight houses, Frederick Street.
Garage and showrooms, Newport.
Long Sutton.—Two almshouses for widows (£2,000).
Woodhall Spa.—Eight cottages, Alexandra and King Edward Roads.

Middlesex.
Ealing.—Secondary School.
Technical Institute.
Harefield.—Alma Cottages: additions.
Jack's Mill House: additions and alterations.
Bell's United Asbestos Works: additional factory buildings.
Staines.—Workhouse Boys' Home. Messrs. Hawkins & Co. (of Ashford), contractors (£2,170).
Sunbury Common.—Church (£3,500 for first portion).
Teddington, Upper.—Church, Fulwell.
West Drayton.—Two houses.
Wood Green.—Music Hall.

Monmouthshire.
Caerwent.—Parish Church: enlargement.

Norfolk.
Great Yarmouth.—Boys' Council School (440 places), Cobholm Island.
Hunstanton.—Six cottages on the Gas Works land.

Northamptonshire.
Brixworth.—Isolation Hospital.
Wellingborough.—Messrs. Whitworth Brothers' Mill at Little Irchester: additions and alterations.
The British Wagon Co.: repairing workshops, Harrowden.

Northumberland.
Blyth.—Council Schools.
Newcastle-on-Tyne.—Public Baths at Byker, Elswick and Westgate: additions (£1,700).
Town Hall.
Wallsend.—Secondary School and Technical Institute.
Whitley Bay and Monkseaton.—Secondary School for 125 boys and 125 girls (£12,000).

Nottinghamshire.
Nottingham.—St. Mary's Church enlargement.

Oxfordshire.
Oxford.—Ruskin Hall for forty students, with lecture rooms, &c., next Worcester College. Messrs. Kingerlee, contractors (£9,235).

Shropshire.
St. George's.—Parish Church Tower (£1,500). Mr. F. T. Beck (of Wolverhampton), diocesan surveyor.
Wellington.—Cottage Hospital (£3,000). Mr. L. T. Moore, A.R.I.B.A., architect.

Staffordshire.
Audley.—Hospital. Mr. A. Cotton, council surveyor.
Bucknall.—Hospital extension. Messrs. Bennett Brothers (of Burslem), contractors (£3,250).
Stafford.—House, Sandon Road.
Motor Garage, Lichfield Road.
Stoke-on-Trent.—Fire Station.
Church of England Boys' School, Fenton (£2,000).
Church of England Elementary Schools: remodelling (£1,000).
Roman Catholic Boys' School.

Surrey.
Farnham.—Twenty artisans' cottages.
Mitcham.—Baptist School Chapel (£1,000).
Woking.—Goldsworth Council School: enlargement (additional 350 places).

Sussex.
East Grinstead.—Fire Station (£600).
Newhaven.—Infants' Council School.

Yorkshire.

Brough.—Police Station and Court House. County Surveyor at Beverley.

Burley-in-Wharfedale.—Council School.

Doncaster.—Working-class dwellings at Balby, Carr House, and Elmfield and Wheatley.

Leeds.—Boot Factory for the Wholesale Co-operative Society at Woodhouse Carr.

Thirsk.—Church House.

WALES.

Cardiff.—St. Martin's, Roath: Vicarage.

Pontardawe.—(Supplementary to September 15) Municipal houses. Messrs. Rogers & Sons (of Penylan, Cardiff), contractors (£5,544).

Rhondda.—Council School, Pontrhondda: enlargement and a new department. Mr. J. Rees (of Pentre), architect.

Swansea.—Business premises, Castle Street.
Hospital.
Two Infants' Schools.

SCOTLAND.

Airdrie.—Congregational Church at Coaldyke.

Bishopbriggs.—Offices, &c., Huntershill Quarry.

Clydebank.—Double villa, Mill Road, Yoker. Mr. J. Taylor, builder.

Dundee.—Women's private hospital (£4,000).

Dunfermline.—Laundry premises, Halbeath Road (£2,000 to £3,000).

Elgin.—Academy Buildings: additions. Mr. J. Wittet, architect.

Glasgow.—Public Hall, Sinclair Drive.

Greenock.—Trades Hotel, Bogle Street (534 beds).
Board School, Newton Street (1,040 places), £11,500.

Largs.—(Supplementary to November 17) Dust destructor. Messrs. Heenan & Froude, contractors (£2,897).

Leith.—Bonnington Flour Mills for the North British Railway Company: reconstruction.

Pollokshaws.—Three tenements, Factory, McArthur and Pleasaunce Streets site (£7,280).

Rutherglen.—Boy Scouts' Hall, Burnside.

Shettleston.—Double cottage, Springfield Road.

IRELAND.

Dublin.—Technical Institute, Rathmines (£8,800). Mr. F. Batchelor, F.R.I.B.A. and F.R.I.A.I., &c., architect.

Granard.—Church at Mullahoran. Mr. T. F. McNamara (of Dublin), architect.

Loughrea.—Pump House for waterworks. Mr. F. Bergin, B.E. (of Dublin), engineer.

PATENT SPECIFICATIONS PUBLISHED DECEMBER 7, 1911.

Selected by Mr. James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 24,543. April 22, 1911.—William Podmore, West View House, Porthill, Stafford, and C. F. Bailey, Greenbank, Lawton, Chester. Improvements in or pertaining to filtering apparatus.

26,394. Nov. 14, 1910.—John Hutton, 19 Blenheim Street, Newcastle-on-Tyne. An improved gully grid.

26,508. Nov. 15, 1910.—The Richmond Gas Stove and Meter Co., Ltd., Academy Street, Warrington, Lancaster, and J. A. Ransome, "Shirley," Hill Cliffe, Warrington, and Leslie Dixon Chippendale, Cross Lane, Latchford Without, Warrington. Means for controlling the supply of gas to burners.

26,788. Nov. 17, 1910.—J. C. Moulden and H. W. Webster, both of Seaton Carew, Durham. Improvements in or relating to zinc distillation.

26,789. Nov. 17, 1910.—E. A. Muskett and Rubber Substitute (1910), Ltd., both of 5 Great Winchester Street, London. Improvements in or relating to waterproofing solutions.

27,082. Nov. 22, 1910.—Robert Thomson, architect, and W. A. Thomson, both of 164 Nithsdale Road, Pollokshields, Glasgow. Improvements in ferro-concrete floors.

27,277. Nov. 23, 1910.—W. Kennedy-Laurie Dickson, 4 Denman Street, Piccadilly Circus, W. Improved thermally-actuated electric switch.

27,363. Nov. 24, 1910.—C. P. Ogilvie, Lawford Place, Manningtree, Essex, and George Mitchell, 39 Victoria Street, Westminster. Improvements in or relating to wood working machines.

27,373. Nov. 24, 1910.—George Hatton, Saltwells, Brierley Hill, Stafford. An improved bar for use in reinforced concrete.

27,374. Nov. 24, 1910.—George Hatton, Saltwells, Brierley Hill, Stafford. An improvement in reinforced concrete.

27,488. Nov. 25, 1910.—Convention application Nov. 25, 1909. Friedrich Schmid, 49a Ludwigstrasse, Stuttgart. Improved earth anchor.

27,653. Nov. 28, 1910.—Vittorio Storti, 44 Via Goldoni, Milan. An improved method of and apparatus for reproducing solids, statuary, and the like.

27,862. Nov. 30, 1910.—J. A. Kittridge, 8 Montpelier Gardens, East Ham, Essex, and T. E. Davis, 38 Hatherly Gardens, East Ham. Improvements in means for fastening and securing smoke-boxes and other doors.

27,986. Dec. 1, 1910.—T. F. Canning, 51 Wanstead Park Road, Ilford. Electric apparatus for gas lighting and extinguishing purposes.

28,818.—Dec. 12, 1910.—F. J. Cox and The Machine Gas, Ltd., Welsbach House, Gray's Inn Road, W.C. Improvements relating to air-gas apparatus.

28,838. Dec. 12, 1910.—F. B. Burley, 75 Mildred Avenue, Watford, and E. Jones, 215 Whippendell Road, Watford. Improvements in and relating to combination ranges, coppers, and baths.

29,608. Dec. 20, 1910.—Harvey Lea, 6 Upper Northbrook Avenue, North Strand, Dublin. Improvements relating to apparatus for marbling or ornamenting paper and other substances.

29,680. Dec. 21, 1910.—John Barron, 52 Cow Cross Street, E.C. Improvements in locking stopper valves for resisting back pressure from pent-up sewer gases.

30,126. Dec. 28, 1910.—P. J. Pankhurst, Meirionfa, Lowyn Road, Blaenau-Festiniog, North Wales. Improvements in and/or connected with slate-dressing machines.

402. Jan. 6, 1911.—Johnson & Phillips, Ltd., 14 Union Court, Old Broad Street, E.C., and James Brockie, 41 London Road, Forest Hill. Improvements in lamp globes, particularly for electric arc lamps.

642. Jan. 10, 1911.—W. C. Jennings, 39 Station Road, Ashley Down, Bristol. Improvement in sliding and pivoted windows.

1,168. Jan. 16, 1911.—R. Waygood & Co., Ltd., Falmouth Road, S.E., and H. C. Walker, 46 Tressillian Road, Brockley, S.E. Improvements in and connected with lifts and hoists.

1,278. Jan. 18, 1911.—James Arnott, 11 Broomfield Place, Chapel Lane, Headingley, Leeds. A chemical preparation of certain materials for the incrustation and laying of dust on roadways in the course of watering the same roadways.

1,822. Jan. 24, 1911.—G. L. Huntress, jun., 221 Columbus Avenue, Boston, Mass. Improvements in water level gauges.

2,942. Feb. 6, 1911.—William Anderson, Scotia Villa, Newport, Fife. Improvements in and relating to syphon cisterns.

3,633. Feb. 13, 1911.—Convention application Feb. 12, 1910. Heinrich Rauchholz, 84 Konniggratze Strasse, Berlin, S.W. 11. Improvements in pressure gauges.

3,673. Feb. 14, 1911.—William Clark, 68 New Row, Dunfermline, Fife. Improvements in and relating to the trimming of wall paper.

3,966. Feb. 16, 1911.—F. A. Bullivant, 72 Mark Lane, London. Improvements in apparatus for use in lifting weights.

4,167. Feb. 18, 1911.—B. P. Walker and R. Waygood & Co., Ltd., both of Falmouth Road, Great Dover Street, S.E. Improvements in or relating to the brake mechanism of lifts, cranes, and the like.

4,538. Feb. 23, 1911.—Charles Cusworth, 16 St. Ronan's Road, Abbeydale, Sheffield. Improvements in means for connecting together lengths of tubing or a length of tubing to a tubular portion of an article or the like.

4,964. Feb. 28, 1911.—D. G. Sayer, 22 Risca Road, Newport, Mon. Improvements in or relating to acetylene gas generators and lamps.

5,059. Feb. 28, 1911.—A. F. Bethell, 4 Woodcote Green, Wallington, Surrey. Improvements in sand-paper and like abrasive materials.

5,182. March 1, 1911.—D. P. Moore, 902 F Street, Washington, D.C., and S. B. Pack, 3149 Mount Pleasant Street, Washington, D.C. Improvements in or relating to suction-cleaning machines.

5,609. March 6, 1911.—Convention application March 7, 1910. Clemens Graff, 17 Linkstrasse, Berlin, W. 9, and Hans Mikorey, 13 Wartburgstrasse, Schoneburg, nr. Berlin. Transportable fire-extinguisher.

5,753. March 8, 1911.—G. W. J. Allen, 15 Victoria Park, Fishponds, Bristol. Improvements in automatic fountains.

7,185. March 22, 1911.—F. H. Crittall, Manor Works, Braintree, Essex. Improvements in the manufacture of metal casements.

8,513. April 5, 1911.—The Kitson Empire Lighting Co., Ltd., of Wharf Road, Stamford, and A. Noblett, 21 Priory Road, Stamford. Improvements in or pertaining to vapour-burning apparatus.

9,213. Nov. 14, 1911.—William Tattersall, 53 Tremellen Street, Accrington. Improvements in radiators for heating, cooling, or condensing fluids.

9,644. April 20, 1911.—Otto Kasulke and Willy Otto, Grunewald, Neustettin, Germany. Improved apparatus for effecting the circulation of air.

12,006. May 18, 1911.—Soc. dite Etab. J. J. Carnaud et Forges de Basse-Indre and Hector Petin, all of 3 rue d'Argout, Paris. Improved machine for scouring tinplates and other metal sheets.

12,655. May 25, 1911.—Convention application Dec. 23, 1910. Celestin Delmez, 15 rue du Petit Chien, Antwerp. Apparatus for mechanically cleaning the rails of tramways or the like.

12,904. May 29, 1911.—E. L. Pemberton, 50 Livingstone Street, New Haven, Conn., U.S.A. Improvements in teeth for excavating buckets.

12,905. May 29, 1911.—R. de Wilt, Burdick, Lincklaen, Chenango, New York, and W. A. Wilcox, 511 Cole Building, Nashville, Davidson, Tennessee, U.S. Improvements in wood screws.

13,956. June 12, 1911.—Convention application Dec. 10, 1910.—Ferdinand Burchartz, architect, 1 Madison Avenue, Manhattan, New York. Improvements in hollow building bricks.

16,294. July 14, 1911.—A. J. Michelin, 105 Boulevard Pereire, Paris. An improved process for coating iron or steel.

17,055. July 25, 1911.—Convention application March 1, 1911. Eduard Korner, 1 Blumenstrasse, Coblentz-Lutzel, Germany. Improvements in apparatus for controlling the operation of gas valves from a distance.

17,433. July 31, 1911.—A. N. Kelley, 2875 Grand Boulevard East, Detroit, Michigan, U.S.A. Improvements in machines for making cores and moulds.

18,448. August 15, 1911.—Convention application Jan. 25, 1911. Arota Gesell. mit Beschrankter Haftung, commercial firm of Clausthal & Kontorkhaus, Barkhof, Hamburg. Improvements in and relating to preservative compositions.

CHRISTMAS HOLIDAY ARRANGEMENTS.

WEEK-END tickets, available by any train (mail and boat expresses excepted), will be issued by the South-Eastern and Chatham Railway from London on December 22, 23, and 24, available for return on December 24, 25, 26 or 27, to Tunbridge Wells, Bexhill, St. Leonards, Hastings, Canterbury, Whitstable, Herne Bay, Birchington, Westgate, Margate, Broadstairs, Ramsgate, Sandwich, Deal, Walmer, Dover, Folkestone, Shorncliffe, Hythe, Sandgate, and New Romney (Littlestone-on-Sea). On December 23 a fast train will be run to Chatham, Sittingbourne, Sheerness, Faversham, Whitstable, Herne Bay, Birchington, Westgate, Margate, Broadstairs, Ramsgate, Canterbury, Walmer, Deal and Dover, leaving Victoria at 12.30 midnight, and Holborn 12.25 midnight, calling at St. Paul's 12.27 A.M., Elephant and Castle, Brixton, Loughborough Junction, and Herne Hill. A similar train will also run on the 23rd inst. to Sevenoaks, Tunbridge Wells, St. Leonards, Hastings, Ashford, Canterbury, Ramsgate, Margate, Folkestone, and Dover, leaving Charing Cross at 12.14 midnight, Waterloo 12.17 A.M., Cannon Street 12.22, London Bridge 12.28, and New Cross at 12.37 A.M. Cheap tickets at the week-end fares will be issued by these trains for stations to which week-end bookings are in force. On Christmas Day several extra trains will run, but the ordinary services will be as on Sundays. Frequent trains will run to the Crystal Palace (High Level Station). During the holidays several trains will be withdrawn or altered. Full particulars will be found in the holiday programme and special train service supplement.

Cheap return tickets will be issued from London to Marseilles, Cannes, Nice, Monte Carlo, Mentone, and other stations on the French Riviera, *via* Folkestone and Calais, leaving Charing Cross Station at 1.0 P.M. on December 22, returning any day up to January 30. Cheap excursions will be run from London to Paris, *via* Dover-Calais and Folkestone-Boulogne, on December 21-24; also from London to Brussels, *via* Dover-Calais, Folkestone-Boulogne, and Dover-Ostend from December 21 to the 26th inst. inclusive. Cheap tickets will be issued to Boulogne on those days also. Cheap tickets will also be issued to Calais, Ostend, and Flushing. For the winter sports in Switzerland special arrangements have been made.

Christmas with its holly, mistletoe and yule log is essentially the "home holiday" of the year, and in these days of expeditious and comfortable travel, the unfavourable weather conditions need not exclude any who may wish to join the family circle at this festive season. We have just received a copy of a most attractive programme issued by the Great Central Railway Company. It is intended for those who are spending their Christmas in the Midlands, Yorkshire, Lancashire, Lincolnshire, or North of England. On Saturday and Sunday, December 23 and 24, special expresses will leave Marylebone at suitable times for over 500 different stations. The tickets, issued at extremely low fares, will be available for return on the following Tuesday, Wednesday, or Saturday, enabling those who may so desire to spend the special Bank Holiday period with their friends. Breakfast, luncheon, or restaurant cars will be attached to the trains, and the compartments represent the acme of comfort, being well lighted, and maintained at a genial temperature. Shopkeepers and others whose business will keep them in town until late on Saturday evening will have the advantage of suitable night trains. Copies of this special A B C programme can be obtained free at Marylebone Station, G.C.R. town offices and agencies, or post free from Publicity Department, 216 Marylebone Road, London, N.W.

M. V. A. F. LALOUX, architect, Membre de l'Institut, Commandeur de la Legion d'Honneur, Paris, has been nominated as hon. corresponding member of the R.I.B.A.

MR. ARTHUR C. MARTIN, architect, 11 Hart Street, Bloomsbury, W.C., has prepared a design for a large hostel for theological students, proposed to be erected in connection with King's College, London.

MESSRS. PATMAN & FOTHERINGHAM, LTD., 100 and 102 Theobald's Road, W.C., have secured the contract for the erection of a large factory and warehouses at Camden Town, N.W., for Messrs. Goodall & Son, Ltd., playing card makers.

MR. WILLIAMSON, City Superintendent of Works to the Edinburgh Town Council, has prepared plans for proposed new police headquarters, to be erected on a site facing the Grassmarket. The cost is estimated at £43,750.

THE present cast-iron Town Bridge at Boston, Lincs., has been condemned as unsafe, and a new steel bridge will be erected in its place. Mr. J. J. Webster, M.I.C.E., of Westminster, is acting as consulting engineer.

A NEW church and schools are to be erected at the corner of Bourne Hill Road and New Road, Southgate, N., from the designs of Messrs. George Baines & Son, architects, 5 Clement's Inn, Strand, London, W.C. The buildings are designed in a late period of Gothic freely treated, and embrace a church accommodating about 500 persons and commodious school premises. Externally the buildings will be faced with red brick.

THE local school managers at Ripley last week considered alternative schemes for new buildings. The accommodation and cost of the various schemes were: (1) 942 children, £13,797 13*s.*, cost per head £14 13*s.*; (2) 1,016, £17,528, £17 9*s.*; (3) 1,000, £14,500, £14 10*s.*; (4) 1,092, £17,338, £15 17*s.* The scheme favoured is No. 3, the chief difficulty being the acquisition of a suitable site in a central position.

THE South African *Mining Journal* (Johannesburg) of November 4 publishes the following particulars of the estimated values of buildings, the plans of which have been approved by the Municipal Councils of the towns in question during the month of September, 1911:—Johannesburg £239,364, Boksburg £2,265, Germiston £8,670, Roodepoort £3,250, Krugersdorp £12,025, Pretoria £13,507, and Springs £1,200, making a total value of £280,281. The value of the tenders accepted by the Government for public buildings during the month, and not included in the above amount, was £24,254.

THE
Architect and Contract Reporter.

FRIDAY, DECEMBER 22, 1911.

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P. A. GILBERT WOOD,

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CHRISTMAS HOLIDAYS.

All alterations or fresh copy for advertisements for the next issue must reach us by Saturday morning next, the 23rd inst.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

⁂ *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Banbury.—Jan. 8.—The Town Council invite designs by January 8 for workmen's dwellings to be erected within the borough. Applications for particulars, accompanied by 10*s.* deposit, which will be returned on receipt of bonâ-fide designs, should be made to Mr. Arthur Stockton, town clerk, Town Hall, Banbury.

Bolton.—Jan. 6.—The Lancashire and Cheshire Miners' Federation invite architects in independent practice within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1*s.* Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton. N.B.—The time for sending in applications and designs has been extended from Dec. 1 to Jan. 6.

Bolton.—The King Edward VII. Memorial Fund Committee invite competitive plans from architects now practising as principals within the county borough of Bolton for the King Edward VII. Memorial Nurses' Home proposed to be erected at the Bolton Infirmary. Plan of the site and instructions may be obtained upon payment of £1 1*s.*, which sum will be returned to the competitors provided they shall have sent in *bona fide* plans and particulars and shall have returned all documents, plans, &c. Mr. Samuel Parker, hon. secretary of the Committee, Town Hall, Bolton.

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COSFORD.—Dec. 28.—The Rural District Council are prepared to receive plans for the erection of cottages throughout their district, where required. The plans should show the class of cottage, and are to state the probable cost of erection either in rows of six or in pairs. Mr. Alfred Newman, Clerk to the Council, Hadleigh, Suffolk.

HASTINGS.—Dec. 31.—The Joint Committee of the East Sussex Hospital and the King Edward VII. Memorial Fund invites architects to submit designs in competition for the proposed new hospital. Mr. Edwin T. Hall, F.R.I.B.A., has been appointed assessor. Premiums of £125, £75, and £50 are offered. Conditions and instructions may be obtained (on payment of £1 1*s.* deposit) from Mr. W. M. Rhodes, East Sussex Hospital, Hastings.

IRELAND.—Jan. 9.—The Magherafelt Technical Instruction Committee invite competitive designs for a technical school, proposed to be erected in Magherafelt, the total expenditure, including provision of sewerage and water supply, not to exceed £1,200. Mr. W. D. Cousins, County Technical Office, Courthouse, Coleraine.

LONDON.—Feb. 17.—The Port of London Authority invite preliminary sketch designs in competition for head offices proposed to be erected in Trinity Square, and for the laying out of the remainder of the land as a building site. From the sketches submitted the authors of not more than six designs will be selected to submit designs in a final competition at an honorarium of 200 guineas each, the Authority reserving to themselves the right, on the advice of their assessor, to invite not more than six other architects to send designs in the final competition. The assessor appointed is Sir Aston Webb, R.A. Conditions of the competition, with full particulars of the accommodation required, plan of the site, and photographs of the adjoining buildings, can be obtained on application, on payment of £1 1*s.*, which sum will be refunded on receipt of a bona-fide design, or on the return of the particulars within three weeks, to The Secretary, Port of London Authority, 109 Leadenhall Street, E.C.

SPENNYMOOR.—Jan. 9.—The Urban District Council invite competitive plans and designs for a public hall, market, and offices, &c. Particulars may be obtained on payment of a deposit of £2 2*s.*, which will be returned on receipt of a *bona fide* design. Premiums of £50, £25, and £10 are offered. Mr. F. Badcock, clerk, Council Offices, 3 James Street, Spennymoor. (See advertisement.)

STAFFORD.—Jan. 6.—The Corporation invite designs for a public library. An assessor has been appointed. Send £1 deposit, which will be returned on receipt of a bona-fide design, or the return of the conditions, &c., within one month of receipt. Mr. William Plant, A.M.Inst.C.E., borough engineer, Borough Hall, Stafford.

URUGUAY.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

WALES.—March 15.—Lord Aberconway and the Trustees of the Prestatyn estate, North Wales, invite designs for the laying out of the estate. Premiums of £50, £30, and £20. Assessor, Mr. H. V. Lanchester, F.R.I.B.A. Send applications for conditions, plan, and bye-laws, with 10*s.* 6*d.* deposit (which will be returned on receipt of *bona fide* designs or return of the conditions, &c., within fourteen days of receipt), by January 8, to Lord Aberconway and the Trustees of the Prestatyn Estate, 33 Henrietta Street, Strand, W.C.

CONTRACTS OPEN.

BARKING.—Jan. 5.—For erection of an elementary school (in three blocks) in the Ripple Road, together with caretaker's house, out-buildings, boundary walls, fencing, and drains, the school to accommodate 1,338 children, for the Education Committee. Deposit £2 2*s.* Mr. C. J. Dawson, F.R.I.B.A., architect, 16 Cambridge Road, Barking, Essex.

BARROW-IN-FURNESS.—Jan. 3.—For the whole of the works in one contract in connection with the erection of three pairs of semi-detached cottages, one detached cottage and outbuildings, on the Bridgegate estate, for the Corporation. Borough Engineer's Office, Town Hall.

BIRKDALE.—Dec. 28.—For erection of caretaker's lodge, cricket pavilion, and bowls-house at the Bedford Road Recreation Ground. Deposit 30*s.* The Town Hall, Birkdale, Lancs.

BRADFORD.—Dec. 30.—For all trades required in alterations to classrooms and erection of new conveniences at the Ryan Street School. The City Architect, Town Hall, Bradford.

BRAUGHING.—Jan. 3.—For building four cottages at Braughing, Herts., for the Hadham Rural District Council. The Council's Offices, 29 North Street, Bishop's Stortford; or Mr. Andrew Weir, Ford Street Farm, Braughing.

BRIDLINGTON.—Dec. 28.—For alterations to premises, 2 Prospect Street. Mr. J. Earnshaw, architect, Carlton House, Bridlington.

BROADCLYST.—Dec. 30.—For rebuilding Elbury farm buildings, in the parish of Broadclyst, Devon. Messrs. E. H. Harbottle & Son, architects, County Chambers, Exeter.

BUGLAWTON.—Jan. 4.—For the erection of proposed Council school at Buglawton, near Congleton, Cheshire. Deposit £1 1*s.* Messrs. A. Price & Son, architects, Sandbach.

CHIRBURY (SALOP).—Jan. 13.—For erection of a village hall. Mr. W. Riddell, The Estate Timber Yard, Powis Castle.

CIRENCESTER.—Jan. 13.—For the erection of 24 houses in Siddington Road, for the Urban District Council. Send names and £2 2s. deposit by Dec. 30 to Mr. V. A. Lawson, A.M.I.C.E., Council Buildings, Cirencester.

COVENTRY.—Jan. 24.—For erection of a public elementary school, to accommodate 1,148 children, at Centaur Road. Mr. F. Foster, architect, Masonic Buildings, Little Park Street, Coventry. Send names and £1 1*s.* deposit by Jan. 1 to the Education Office, Priory Row, Coventry.

CRAKEHALL.—Jan. 17.—For the whole of the work connected with erection of a new elementary school at Crakehall, Yorks, for 100 children. Rev. E. T. G. Hunter, Crakehall Vicarage, Bedale.

FAKENHAM.—Jan. 11.—For erection of new school at Fakenham and for the erection of cookery and manual instruction rooms on the same site, for the Norfolk Education Committee. Send names and 1*l.* 1*s.* deposit by Dec. 23 to Mr. H. J. Green, architect, Castle Meadow, Norwich, and Paradise Chambers, King's Lynn.

GLASGOW.—Dec. 29.—For the digging and mason works and the iron and steel fencing work required in connection with the proposed alterations to the sheep pens at Cattle Market, Duke Street. The Office of Public Works, 64 Cochrane Street, Glasgow.

GREAT YARMOUTH.—Jan. 2.—For erection of a new art school at Trafalgar Road. The Borough Surveyor, Town Hall, Great Yarmouth.

GUILDFORD.—Dec. 29.—For the following works, &c., for Guildford Gas Light and Coke Co.—viz.: (*a*) brickwork and and slating for the new coal store; (*b*) supply of materials for (excluding steelwork) and erection of an exhauster house; (*c*) tiling of engine-room in basement of present retort house. Deposit £1 1*s.* Mr. P. C. Cleasby, Gasworks, Guildford.

GUILDFORD.—Jan. 6.—For the erection of 20 cottages in Cline Road. Deposit £2 2*s.* Mr. A. D. Jenkins, Town Clerk, Bridge Street, Guildford, Surrey.

HALE.—Jan. 5.—For the conversion of the girls' home, Ashley Road, into public offices, for the Hale Urban District Council. Mr. F. H. Brazier, A.R.I.B.A., architect, Bank Chambers, Ashley Road, Hale, Cheshire. Send £1 1*s.* deposit to Mr. Whyatt, clerk, Council Offices, Ashley Road, Hale, Cheshire.

HALIFAX.—Jan. 18.—For the execution of works in connection with the extension of the sludge-pressing works, gauge weirs, lime-mixing plant, &c., at the sewage disposal works, Copley, for the Highways Committee—viz.: (Contract No. 33) bricklayer's and mason's work (deposit £10); (34) plumber's work (deposit £1); (35) slater's work (deposit £1); (36) steelwork (deposit £1); (37) painter's work (deposit £1); (38) supply and erection of three sludge presses and appurtenances (deposit £10); (39) one lime-mixer and pump (deposit £5); (40) penstocks (deposit £1). Mr. J. Lord, M.I.C.E., borough engineer, Town Hall, Halifax.

HULL.—Jan. 8.—For the necessary work to be performed in erection of a school in Saner Street. Deposit £2 2*s.* Mr. J. H. Hirst, city architect, Town Hall, Hull.

ILKLEY.—Dec. 30.—For the erection of semi-detached villas, Ilkley. Mr. W. H. Herbert Marten, Licentiate R.I.B.A., 3 Cookridge Street, Leeds.

IRELAND.—Jan. 2.—For erection of stores at their creamery, for the Ballymote Agricultural and Dairy Society. Mr. J. J. Cooke, manager, Ballymote.

LINCOLNSHIRE.—Jan. 11.—For erection of cottages in the parishes of Lutton, Tydd St. Mary, Sutton St. James, Fleet, and Whaplode, for the East Elloe Rural District Council. Mr. R. H. Holmes Hand, Spalding.

LOCKWOOD.—Dec. 29.—For the various works required in erection of a weaving shed, &c., at Lockwood, Yorks. Messrs. Lunn & Kaye, architects and surveyors, Huddersfield.

LONDON.—Jan. 10.—The Guardians of the Poor of the Parish of St. Giles, Camberwell, invite tenders for the erection of additional accommodation for nurses at their Workhouse, Constance Road, East Dulwich, S.E. Deposit £2 2*s.* Mr. A. E. Mullins, architect, 48 Peckham Road, Camberwell, S.E.

LONDON.—Jan. 11.—The Guardians of the Poor of the Southwark Union are desirous of receiving tenders for the erection of a medical officer's house, nurses' home, and alterations to their infirmary, East Dulwich Grove, S.E. Deposit £10. Mr. A. Saxon Snell, F.R.I.B.A., 22 Southampton Buildings, Chancery Lane, W.C.

MANCHESTER.—Jan. 6.—For the following work, &c., for the Manchester Education Committee—viz.: (1) erection of the municipal school of domestic economy, High Street, Chorlton-on-Medlock (deposit £2 2*s.*); (2) supply of red terra cotta (deposit £1 1*s.*); and (3) supply of buff terra cotta in connection therewith (deposit £1 1*s.*). The Education Offices, Deansgate, Manchester.

MIDDLESBROUGH.—Jan. 8.—For alterations and additions to the police residences at the back of the Cannon Street police station. Mr. S. E. Burgess, M.I.C.E., borough engineer, Municipal Buildings, Middlesbrough.

MILNROW.—Jan. 5.—For erection of an elementary school at Milnrow, near Rochdale, to accommodate 400 children, for the Lancashire Education Committee. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

PORTSMOUTH.—Jan. 5.—For the demolition of old premises and the extension of Portsmouth head post office. Deposit £1 1*s.* The Postmaster at Portsmouth Head Post Office, and H.M. Office of Works, &c., Storey's Gate, S.W.

RICHMOND (Yorks).—Jan 8.—For alterations and additions to police station, Victoria Road. Apply at the Police Station, Victoria Road, Richmond, Yorks.

SHEFFIELD.—Jan. 3.—For the following works required in the erection of filter-house at Low Bradfield, near Sheffield, for the Water Committee—viz.: (1) general building work; (2) structural steelwork. The City Architect, Town Hall, Sheffield.

SHEFFIELD.—Jan. 3.—For erection of Sheffield, Attercliffe, new telephone exchange, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s.* The Postmaster at Sheffield Head Post Office, and at H.M. Office of Works, &c., Storey's Gate, S.W.

SOUTH BANK.—Dec. 30.—For new town hall, offices, &c., for the South Bank-in-Normanby Urban District Council, Send names by Dec. 30 to Mr. C. E. Preston, clerk, Normanby Road, South Bank, Yorks.

TOTTENHAM.—Jan. 16.—For erection of an underground convenience at Bruce Grove, Tottenham. Mr. W. H. Prescott, M.I.C.E., engineer, Council Buildings, The Green, Tottenham.

WALES.—For erection of a pavilion in their recreation ground, for the Llandrindod Wells Urban District Council. Send names and addresses and £1 1*s.* deposit to Mr. D. C. Davies, clerk, Town Hall, Llandrindod Wells.

WALES.—Dec. 30.—For erection of a new farmhouse, Nanty-y-Cynnog, Llanegryn, for the Trustees of the Griffiths Owen Charity. Mr. J. Howarth, L.R.I.B.A., architect, &c., Towyn and Barmouth.

WALES.—Jan. 5.—For the following works, for the Breconshire Education Committee—namely: Crickhowell Council School, erection of cloakrooms and sundry other alterations to the existing building; Llanganten Council School, addition of class room (32 places), cloakrooms, &c., and sundry alterations to the existing building; Talgarth Council School, erection of girls' cloakroom and other works. Mr. C. W. Best, surveyor to the committee, County Hall, Brecon.

WALES.—Jan. 8.—For erection of a Council school building at St. Ishmaels, in the county of Pembroke. Mr. D. E. Thomas, architect, 17 Victoria Place, Haverfordwest.

WALES.—Jan. 8.—The Royal National Lifeboat Institution are prepared to receive tenders for the construction of a reinforced concrete (Considère system) lifeboat launching slipway and reinforced concrete and steel approach gangway on the north-west side of Mumbles pier, The Mumbles, in the county of Glamorganshire, upon the sea bed thereat. Mr. F. le Boulanger, hon. secretary, Mumbles Hill, Mumbles, Glamorganshire; or Mr. W. T. Douglass, M.Inst.C.E., 15 Victoria Street, Westminster, S.W.

WALTHAMSTOW.—Jan. 11.—For erection of a county high school for 300 girls at Church Hill, Walthamstow. Deposit £5. Mr. C. J. Dawson, F.R.I.B.A., architect, 11 Cranbrook Road, Ilford, Essex.

WEST HAM.—Jan. 15.—For alterations and additions to Colegrave Road and Water Lane schools, Stratford, for the Education Committee. Send names and £5 deposit by Jan. 1 to Mr. William Jacques, A.R.I.B.A., architect to the Education Committee, 2 Fen Court, Fenchurch Street, E.C.

WHALLEY.—Feb. 12.—For the completion of the erection of the County Asylum for 2,000 patients. Deposit £10. Mr. H. Littler, architect, 16 Ribblesdale Place, Preston.

WITHYCOMBE (DEVON).—For alterations and additions to the old recreation room, Withycombe. Mr. H. J. Lacey, architect and surveyor, Ellendale, Withycombe Road, Exmouth.

YEOVIL.—Jan. 1.—For erection of 146 houses at Yeovil, for the Town Council. Mr. H. B. Batten, town clerk, Yeovil.

TENDERS.

BUCKNALL.

For extensions to the hospital. Mr. E. JONES, architect, Hanley.

Grants	£3,800	0	0
Colley & Lindop	3,794	10	0
Walters & Co.	3,765	10	0
Cooke	3,745	0	0
Chatfield	3,670	0	0
Ellis	3,609	0	0
Godwin	3,607	0	0
Sherratt	3,564	0	0
Broadhurst	3,540	0	0
Smith & Son	3,532	0	0
Wardle	3,531	0	0
Leonard	3,510	0	0
Tompkinson & Bettelley	3,507	0	0
Sambrook	3,497	6	0
Cornes & Son	3,355	0	0
BENNETT BROS., Burslem (*accepted*)	3,250	0	0

IPSWICH.

For the erection of new offices, malting, with grain stores, for Messrs. Thomas Mortimer, Ltd. Mr. F. W. SKIPPER, architect and surveyor, Norwich.

Catchpole & Sons	£9,380	0	0
Greenwood & Sons	9,279	0	0
Youngs & Son	9,276	0	0
Kerridge & Shaw	9,125	0	0
F. BENNETT (*accepted*)	8,935	0	0

LEYTONSTONE.

For the erection of a police-station. Mr. J. DIXON BUTLER, F.R.I.B.A., architect, surveyor to the Metropolitan Police District, New Scotland Yard, S.W.

Jarvis & Sons	£5,908	0	0
Fairhead & Sons	5,855	0	0
Moss & Sons	5,675	0	0
Higgs & Hill	5,594	0	0
Maddison	5,577	0	0
Kilby & Gayford	5,425	0	0
Coxhead	5,414	0	0
Grover & Son	5,391	0	0
Patman & Fotheringham	5,163	0	0
Hammond & Son	5,113	0	0
Perry & Co.	5,074	0	0

LONDON.

For converting the laundry block at the Pentonville Road place of detention, Islington, into dormitories, for the London County Council.

Johnson & Co.	£750	0	0
Markham & Markham	721	0	0
Downs	713	0	0
J. & C. Bowyer	695	0	0
Lawrance & Sons	659	0	0
MATHER, Islington (*recommended*)	574	0	0
Architect's estimate	660	0	0

LONDON—*continued.*

For the enlargement of the Wycliffe School for mentally defective boys, Battersea, S.W., for the London County Council.

Rice & Son	£1,062	0	0
Wall	1,047	9	6
Garrett & Son	1,016	0	0
King & Son	991	0	0
Roberts & Co.	959	0	0
Jewell	948	15	1
Fletcher	894	10	0
Lole & Co.	886	1	9
F. & G. Foster	886	0	0
Johnson & Co.	880	0	0
J. & C. Bowyer, Upper Norwood (*recommended*)	879	0	0
Architect's estimate	901	0	0

For the adaptation of the stable building at Golder's Hill, N.W., so as to provide tenements for the L.C.C. staff.

Marchant, Hirst & Co.	£1,560	0	0
Streather	1,300	0	0
Barker & Co.	1,296	0	0
Grover & Son	1,244	0	0
Neal	1,165	0	0
J. & C. Bowyer	1,135	0	0
Harding & Son	1,057	0	0
Rowley Bros., Wood Green (*recommended*)	1,020	0	0
Whyborn	896	0	0
Architect's estimate	1,000	0	0

For rebuilding the Ricardo Street School, Poplar, E., to accommodate 1,152 children, for the London County Council.

Brand, Pettit & Co.	£20,797	0	0
McCormick & Sons	20,699	0	0
Godson & Sons	20,258	0	0
L. H. & R. Roberts	20,143	0	0
McLaughlin & Harvey	19,755	0	0
Leng	19,513	0	0
Perry & Co.	19,421	0	0
Rowley Bros.	19,349	0	0
Lawrance & Sons	19,157	0	0
F. & T. Thorne	18,956	0	0
Patman & Fotheringham, Ltd., Park Street (*recommended*)	18,923	0	0
Architect's estimate	19,485	0	0

MARGATE.

For supply of a refuse destructor, for the Corporation. Mr. E. A. Borg, borough engineer, Margate.

Horsfall Destructor Co.	£11,430	0	0
Manlove, Alliott & Co., Nottingham (*recommended*)	11,403	0	0
Heenan & Froude	11,304	0	0
Hughes & Stirling	9,953	13	0
Goddard, Massey & Warner	9,324	12	0

OUNDLE.

For the widening of the Oundle North Bridge, for the Northants County Council. Mr. C. S. Morris, county surveyor, Northampton.

Trentham	£11,468	19	0
Marriott	10,567	0	0
Brown & Son	9,823	0	0
Beardsmore & West	9,799	17	0
Freeman	9,419	10	5
Martin	9,201	0	0
Hacksley Bros.	9,182	0	0
Finnegan	8,765	5	6
Hyslop	8,663	0	3
Drever, Kettering (*accepted*)	7,953	10	10

OXFORD.

For work at Ruskin College (first section). Messrs. Joseph & Smithem, architects and surveyors, 83 Queen Street, Cheapside, E.C.

Parnell & Son	£10,515	0	0
Foster & Dicksee	10,333	0	0
Moss & Sons	9,965	0	0
Organ	9,880	0	0
Wooldridge & Simpson	9.795	0	0
Downs	9,720	0	0
Benfield & Loxlee	9,570	0	0
Wallis & Sons	9,476	0	0
Hutchins & Sons	9,293	0	0
Kingerlee & Sons, Oxford (*accepted*)	9,256	0	0

WALES.

For erection of 20 or more houses near the Pontygwindy Hotel, Caerphilly, for the Pontygwindy Building Club. Mr. H. G. Jones, architect, Hengoed.

Davies Bros.	£4,569	0	0
Rees & Co.	4,372	0	0
Rossiter, jun.	4,300	0	0
Hamilton & Millard	4,240	0	0
Lewis & Sons	4,160	0	0
Jones	4,010	0	0
Harris	3,800	0	0
Thomas & Son, Llanbradach (*accepted*)	3,695	0	0

WEYBRIDGE.

For the erection of the proposed Technical Institute. Messrs. Jarvis & Richards, architects, 10 Queen Anne's Gate, Westminster, S.W.

Horsell	£4,397	0	0
Annett	4,325	0	0
Smith & Sons	4,257	0	0
Potterton	4,205	0	0
Pasterfield & English	4,172	0	0
Love & Co.	4,139	0	0

WILLESBOROUGH

For erection of a school and alteration of existing buildings, for the Kent Education Committee.

Howland	£3,200	0	0
Epps	3,000	0	0
Edwards	2,990	0	0
Kirk & Randall	2,746	0	0
Scott Bros.	2,796	0	0
Ballard	2,795	0	0
Bowles	2,730	0	0
Skinner	2,587	0	0
Davison	2,680	0	0
Hayward & Paramor	2,677	0	0
Hyslop	8,663	0	3
Spinner	2,650	0	0
Wallis & Sons	2,646	0	0
Shippam	2,634	0	0
Ingleton	2,587	0	0
Browning	2,580	0	0
Ellis Bros.	2,570	0	0
Burrows	2,558	0	0
Godden & Sons	2,550	0	0
Wood & Sons	2,499	0	0

GLASGOW INSTITUTE OF ARCHITECTS.

A quarterly general meeting of the Glasgow Institute of Architects was held on the 13th inst. within the secretary's chambers, 115 St. Vincent Street, Mr. John B. Wilson, F.R.I.B.A., president, in the chair. The Secretary submitted a report on the matters which had been dealt with by the council since last meeting. Messrs. William A. Arbuckle, Office of Public Works, Glasgow; Arthur Gossman, 58 West Regent Street; and Alexander Smellie, 59 Montgomery Street, Girvan, had been elected associate members. Representations had been made for amendment of the conditions of two competitions, and in one of these the council had been successful in arranging for a fully qualified assessor being appointed. A proposal that a town planning exhibition be held in Glasgow had been received with satisfaction, and the council hoped that arrangements would be made to hold such an exhibition in the city. It was reported that the council had fully considered the amendments on the proposed new articles of association suggested at the extraordinary general meeting of the Institute held recently, and an informal discussion took place on the alterations proposed by the council. It was reported that the proposals would be brought before the Institute at an early date for approval. The Secretary reported that intimation had been received from the R.I.B.A. that it was absolutely necessary that all applications for election to the class of Licentiates should be in the hands of the secretary of the Royal Institute by April 30, 1912, at latest.

The Glasgow Dean of Guild Court last week granted a lining to the Glasgow Royal Infirmary to demolish the existing buildings in Cathedral Square and Vicar's Alley, and erect new buildings there. The cost of this section of the reconstruction of the Royal Infirmary is estimated at over £80,000. Mr. Miller, A.R.S.A., Glasgow, is the architect.

ARLIDGE *v.* THE HAMPSTEAD BOROUGH COUNCIL.

Mr. Edward Leonard, an Inspector of the Local Government Board, held a public inquiry on the 8th inst. at the Hampstead Town Hall to hear an appeal by Mr. William Arlidge against the refusal of the Hampstead Council to determine a closing order made under the Housing, Town Planning, &c., Act, 1909, on January 12, 1911, in respect of 83 Palmerston Road, Hampstead, N.W. Mr. Turner appeared for the Council and Mr. J. S. Rubinstein (Rubinstein, Nash & Co.) for the appellant.

On behalf of the Council the closing order was supported mainly on the ground that the premises were built on a wet clay soil, and that as a result the basement was so damp as to render the premises unfit for human habitation. The Medical Officer for Health and the Senior Sanitary Inspector stated that for the same reason notices had been served on thirty houses in the same street, and that with the exception of the appellant their notices had been complied with.

On behalf of the appellant witnesses were called to prove that the house was not built on a clay soil, and that dampness did not in fact exist. Samples of the earth, of the bricks, mortar, and boarding in the basement were produced, and reports made by Dr. Winter Blythe and Messrs. Potters were put in. The witnesses called included the present occupier and his wife, who had resided in the house for the last nine months, and who stated that neither they nor their children had had a day's illness during that period.

At the conclusion of the inquiry the inspector stated he would inspect the premises and report the result to the Local Government Board.

LONDON MASTER BUILDERS' ASSOCIATION.

The Council of the above met on December 14, when the President (Mr. G. Bird Godson) occupied the chair.

After receiving and approving the Finance Committee's report, the Council proceeded to consider various trade matters, the National Insurance Bill, the Trade Disputes Act (1906), National Federation communications, and the next issue of the Association Hand-Book and Diary.

It was decided to hold the annual dinner on Thursday, February 22 next, and the annual general meeting of the Association on the following Thursday (February 29).

Messrs. the Patent Rapid Scaffold Tie Company, Ltd., 124 Victoria Street, Westminster, S.W., was elected an associate member, and the following were nominated as ordinary members: Mr. B. E. Nightingale, Albert Works, Albert Embankment, S.E.; Messrs. E. A. Roome & Co., 36 Basinghall Street, E.C.; Messrs. William F. Blay, Ltd., Dartford, Kent; Messrs. Lole & Co., 12a Trafalgar Square, Chelsea, S.W.; and Messrs. F. & F. J. Wood, 64 Cleveland Street, Mile End, E.

LONDON ASSOCIATION OF MASTER DECORATORS.

The London Association of Master Decorators has been figuring in the recent protest against the Insurance Bill. We understand that the Association would have taken independent steps earlier, but were relying upon two resolutions passed by the National Association of Master House Painters of England and Wales at their recent Conference, but which were afterwards considered irregular.

At the last meeting of the London Association, the matter was discussed, and the fear was expressed that it was too late to take any effective action in the matter. As, however, there was a unanimous opinion that no pains should be spared to oppose the measure, the Secretary was authorised to do what he could in the matter, and both he and Mr. Dakin, the Vice-President, were present at the meeting at the Cannon Street Hotel.

Various other matters of importance were dealt with at the last Committee meeting of the Association, including the election of several new members. The Secretary also intimated that he had signed, on behalf of the Association, a memorial to the Prime Minister praying for certain alterations of the law with relation to picketing at strikes, and other matters in connection therewith. It was resolved to strengthen the memorial by obtaining from the members of the Committee statements of their personal experiences of inconveniences caused during the recent railway strike.

The Educational Committee is still in negotiation with the L.C.C. on the subject of the better training of decorators, and good results may soon follow.

VARIETIES.

The Court of Common Council at their last meeting voted 200 guineas to the Maintenance Fund in connection with the fabric of St. Paul's Cathedral.

Mr. J. J. Burnet, A.R.S.A., architect, Glasgow, has prepared plans for a memorial church hall proposed to be erected at Kilmacolm at a cost of about £2,000.

Mr. Vincent Cattermole Brown, quantity surveyor, of Paignton, has retired on account of ill-health. His practice has been acquired by Mr. George Sealley Harris, of Paignton, Devon.

Plans for a Carnegie Library proposed to be erected at Ebenezer, near Carnarvon, have been prepared by Mr. A. H. Fennell, architect, Chester-le-Street, Co. Durham. It is to be erected at a cost of £2,000.

The Harrow Council have agreed to invite designs in competition for proposed public offices. Premiums of 30 guineas, 20 guineas, and 15 guineas are to be offered. The competition will close on March 16.

Mr. John Todd, the district surveyor of the East District of the City, has presented the Corporation, for the Guildhall Museum, with a set of photographs of buildings about to be demolished in his district.

The Devon County Council are about to make application to the Board of Education for their sanction in connection with the provision or enlargement of secondary schools at Ashburton, Newton Abbot, Ottery St. Mary, Tiverton, and Torquay.

The Royal Institute of the Architects of Ireland held their annual general meeting last week at 31 South Frederick Street, Dublin. The following gentlemen were duly elected on the Council for the year 1912: Messrs. C. H. Ashworth, G. P. Sheridan, J. H. Webb, L. O'Callaghan, F. G. Hicks, H. Allberry, W. Kaye-Parry, A. G. C. Millar, W. A. Scott.

The Building Committee of the Stepps United Free Church has decided to proceed at once with the erection of a church from plans prepared by Mr. Andrew Balfour, F.R.I.B.A., architect, Glasgow. The church, which will be built of white stone, will have seating accommodation for 650, capable of extension to 810 without structural alterations. The estimated cost is £5,000.

Mr. Arthur Nunweek, architect, Sheffield, has been notified of the Pontefract Council's acceptance of his plans for the erection of public baths in that borough. The competition was limited to architects practising in the West Riding of Yorkshire. According to the conditions the cost was not to exceed £4,500.

An amalgamation of brickmakers, to be known as the Manchester and District Common Brickmakers' Association, has been formed (a correspondent of the *Manchester Guardian* writes) for the regulation of prices for common bricks in the area. Negotiations with this object have been proceeding since March of this year, but it is only within the past few days that the agreement has been signed by the firms concerned. The scheme is on lines that have been successfully worked in London and Liverpool, and provides that no member of the association shall sell at less than the minimum rate agreed upon for bricks delivered in any part of the district. The Manchester and district brickmakers have been among the last to adopt a scheme of this character, but they now state that some such arrangement is absolutely necessary in view of the fierce competition that has been proceeding for several years. The scheme comes into operation on January 1.

The men employed in the building and allied trades in Truro recently demanded a standard rate of 7*d.* per hour for the carpenters, masons, and painters, and 5½*d.* for labourers. The masters replied that any employee who had a grievance with regard to wages must discuss the same with the employer. The communication was discussed by the men's committee, who decided not to reply to the employers, but to submit all correspondence to the Press with the following resolution:—"That the letter sent by the employers to the men is not regarded as being at all satisfactory, and not in the same spirit as that which actuated the men in their first letter; and that the men looked upon it as a means to an end to mark those who dared to ask for an increase; and that while they, at present, can do nothing further, they propose in the near future to fight out the whole question of wages of the building trade for the city of Truro."

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

Berkshire.
Reading.—Factory, Basingstoke Road (near the Palmer Schools).

Cambridgeshire.
Cambridge.—Clergy Training School: Dining Hall and other additions.

Cheshire.
Tattenhall.—Council School. Mr. H. Beswick, F.R.I.B.A. (of Chester), County architect.

Cornwall.
Fowey.—Cottage Hospital.
Penzance.—Stores, Causewayhead. Mr. H. Maddern, architect.
Truro.—House, Castle Street. Mr. A. J. Cornelius, architect.

Cumberland.
Beaumont.—Farmhouse reconstruction, Casson Dyke.
Belle Vue.—Piggeries, Beivor Farm.
Blackwell.—Three cottages. Mr. H. Higginson (of Carlisle), architect.

Derbyshire.
Alfreton.—St. Martin's Mission Schoolroom and Parish room (£700).
Horsley-Woodhouse and Kilburn.—Public Elementary Schools for 225 and 250 places respectively.
Normanton-by-Derby.—Parochial Room (£2,500).

Devon.
Exmouth.—R.C. Church of the Holy Ghost.

Durham.
Easington Colliery.—Two hundred and fourteen houses for the Easington Coal Co., Ltd.
Etherley.—Public Elementary School for about 320 places.
South Shields.—Primitive Methodist Church.
Spennymoor.—Market Hall, Council Offices, &c.

Essex.
Chelmsford.—Council Offices.
Orsett.—Fever Hospital pavilion for 25 beds (£2,150). Mr. C. M. Shiner, A.R.I.B.A., architect.

Kent.
Ashford.—"Gore Hill House": additions.
Margate.—Eight-cell Refuse Destructor (£13,218).
Northfleet.—Cinematograph Theatre, High Street.
Sheldwich.—Schools: alterations and improvements.

Lancashire.
Bolton.—Four houses, Church Avenue.
Fifteen houses, Willows Lane.
Primitive Methodist Chapel School: extension, Egyptian Street.
Shop, Willows Lane, for the Bolton Co-operative Society.
Oldham.—Central Conservative Club: extension.
Southport.—Boys' Secondary School.

Lincolnshire.
Fleet, Lutton, Bourne, Sutton St. James, Tydd St. Mary, Whaplode.—Cottages. Mr. R. H. H. Hand (of Spalding), architect.

Monmouthshire.
Panteg.—Mobilisation Store for No. 3 Battery R.F.A. Mr. E. H. Linton (of Newport), architect.

Northamptonshire.
Sawtry.—Wesleyan Methodist Church.

Northumberland.
Blyth.—Waterloo Hotel: rebuilding.
Twenty-six houses, Rosemary Terrace.
Secondary School (£9,600).

Shropshire.
Shrewsbury.—St. Mary's Parish room.

Somerset.
Taunton.—Somerset County Club: additions and alterations.
Council Schools, East Reach.
Weston-super Mare.—Abattoirs.

Staffordshire.
Hatton.—Primitive Methodist Chapel.
Hednesford.—Technical Institute.
Newchapel.—Parish Church: addition of chancel and vestries (£1,000).
Stoke-upon-Trent.—Offices, Wolfe Street. Mr. R. T. Longden (of Burslem), architect.

Suffolk.
Ipswich.—Bethesda Chapel: rebuilding.

Surrey.
Cobham.—Infants' Council School for 150 places.

Sussex.
Bexhill-on-Sea.—Drill Hall for the Engineers.
Horsham.—All Saints' Council School: enlargement by 200 places.

Westmorland.
Casterton.—Cottage. Mr. J. Hutton, M.R.S.I. (of Kendal), architect.

Worcestershire.
Broadway.—Sixty cottages. Messrs. Dicks & Waldron (of Evesham), architects.

Yorkshire.
Keighley.—Technical Institute: extensions. Messrs. W. H. & A. Sugden, architects.
Middlesbrough.—Police residences, Cannon Street: additions and alterations. Mr. S. E. Burgess, M.Inst.C.E., Borough engineer.
Wombwell.—Public Baths, Hough Lane.

WALES.

Brynmawr.—Church.
Caerphilly.—Eighteen (or more) houses on the Tir Merchant Estate, Bedwas Road. Messrs. T. E. Richards & Kaye (of Pontypridd and Cardiff), architects.
St. Ishmael's.—Council School. Mr. D. E. Thomas (of Haverfordwest), architect to the Pembrokeshire Education Authority.
Swansea.—Alterations to "Coopers' Arms," Neath Road.
Seven houses in Eversley, Manselton, Neath, Penvillia and Sketty Roads.
Two houses in Cecil Street.
Eight houses and shops, Carmarthen and Llangyfelach Roads.
One house and shop, Monterey Street.
Schoolroom for the Manselton Road Congregational Chapel.
Two lock-up shops, Bernard Street.
One shop, Neath Road.
Two shops, Castle Street.
Six shops and offices, Castle Street.
New Y.M.C.A. premises, St. Helen's Road.
Tonyrefail.—Church Hall, Coed Ely. Messrs. Thomas & Morgan (of Pontypridd), architects.
Treboeth.—Two houses, New Road.

SCOTLAND.

Arbroath.—Infirmary reconstruction (£8,000).
Broughty Ferry.—Baptist Hall.
Buckie.—Post Office, East Church Street.
Burntisland.—Poorhouse: alterations (£1,000).
Cathcart.—Cottage, Muirend Road.
Clydebank.—Carnegie Public Library (£10,000).
Fyvie.—House, Mill of Ardlogie.
Schoolhouse: additions.
Glasgow.—Royal Infirmary: reconstruction (£80,000).
Mortar mill, house, and an extension of melting shop, Hannay Street, for the Steel Co. of Scotland, Ltd.
Tenement of dwelling-houses, Drumother Drive, Parkhead.
Hamilton.—Municipal Offices (£8,500).
Inverkeithing.—Board School for 900 places (£11,000).
Irvine.—Factory for fireclay retorts, Gailes Road (£3,000).
Kirn.—Dunoon Steam Laundry: additions, Hamilton St.
"Dunclutha": alterations for the Glasgow Parish Council as a "Home" (£500).
Newport.—Forgan School: reconstruction.
Oldhall.—Cottage.
Pittenweem.—(Supplementary to Dec. 8) Board School for 450 places. (£4,500.)
Queensferry, North.—Board School (£7,000).
Springfield.—Asylum: extensions for 100 more patients. Mr. Gillespie (of Glasgow), architect.
Stonehaven.—Garage (100 feet by 44 feet), Victoria Street.
Turriff.—House, Balmellie Road. Mr. W. L. Duncan, architect.
Wick.—Fish mart with offices. Mr. Coulcher, engineer.

IRELAND.

Belfast.—Tenement houses (£5,000).
Enniscorthy.—Twenty-four artisans' dwellings (£3,000).

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

Fig. 1.

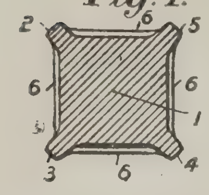
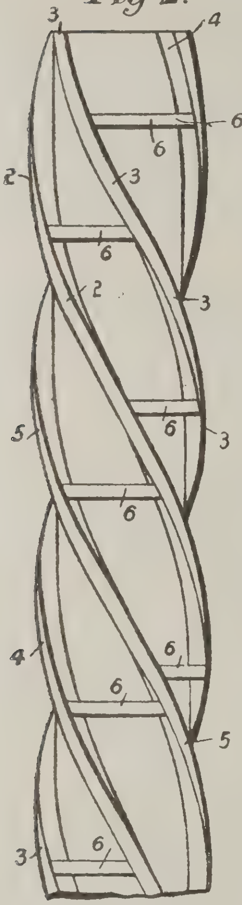


Fig 2.



No. 27,373. Nov. 24, 1910.—An improved bar for use in reinforced concrete. George Hatton, of Saltwells, Brierley Hill, Stafford. This invention consists of an improved rolled iron or steel bar for use in reinforced concrete structures, the improved bar being so shaped and formed as to afford a much better anchorage in the concrete than can be obtained with rolled iron and steel bars as at present made for that purpose. The kind of bar to which the invention relates is that having a number of pronounced outstanding longitudinal ribs, and the invention consists in forming the longitudinal ribs to a spiral shape by a process of twisting the ribbed bar. Considerable difficulty has hitherto been encountered in the manufacture of spiral ribs by rolling, whereas by this invention bars are manufactured in a cheaper and more satisfactory manner. Fig. 1 is a cross-sectional view of one of the improved rolled iron or steel bars. Fig. 2 is a side view of the same. The section of rolled iron or steel bar which it is preferred to use is that shown, by which it will be seen that the body, 1, of the bar is of substantially square shape with four somewhat square shaped ribs, 2, 3, 4, and 5, projecting respectively at the four corners. This bar is twisted axially so as to form four projecting spiral ribs or screw threads, 2, 3, 4, and 5, round the bar, as seen in fig. 2. These pronounced outstanding spiral ribs, 2, 3, 4, and 5, or screw threads, owing to the depth of the valleys between them and to their sides being nearly radii of the bar, enable the bar, 1, to have a much better anchorage in the concrete when embedded therein than is possible with one of the well-known square section twisted bars which is not made with these pronounced projecting spiral ribs. In combination with the spiral ribs or screw threads, such, for instance, as 2, 3, 4, and 5, the bar may be rolled with cross ribs at suitable intervals apart, such, for instance, as marked 6 extending across the spaces between the longitudinal spiral ribs, and thus forming an increased anchorage to the concrete when the said bar is embedded in the concrete. Nov. 22, 1911.

No. 1278. Jan. 18, 1911.—A chemical preparation of certain materials for the incrustation and laying of dust on roadways in the course of watering the same roadways. James Arnott, of 11 Broomfield Place, Chapel Lane, Headingley, Leeds, and Edward Weston, of Victoria Chambers, Leeds. The object of this invention is to provide a composition for applying to roads, streets, permanent ways of railways and the like for the purpose of laying the dust and to prevent the raising of dust in dry weather by the traffic of motor cars or other vehicles on the said roads, or simply by the wind. For this purpose a solution of muriate of soda and sulphate of alumina is distributed in suitable proportions, according to the construction and condition of the roadways to which it is applied. And to which is added a small percentage of crude carbolic acid or powder, or any other deodoriser for disinfecting purposes. This solution is used in the proportion of about one gallon to ten gallons of ordinary water, or in such proportions as may be deemed necessary according to the construction and condition of the roadways, upon which it is distributed by ordinary watering carts, or any other suitable means of spraying the surface, until the road is well soaked and impregnated with the liquid. This solution so used tends to incrustate the dust and bind it to the constituent surface of the road; the sulphate of alumina possessing the property of crystallising the dust and binding it to the roadway, whilst the muriate of soda will retain the moisture and draw moisture from the atmosphere when damp, for the sake of example, during the night. After a certain number of applications, the operation need not be repeated for a considerable time, and thereby expense will be saved in watering the roads. The solution may be carried for sake of convenience in a concentrated form, and be diluted in such proportions as required by the roadway, the carbolic acid or powder, or any other deodoriser that may be preferred, to be added in such quantity as may be necessary for disinfecting purposes. The composition is made up in a solid form in the proportion of:—Muriate of soda twelve pounds, sulphate of alumina four pounds, and the carbolic powder or any other deodoriser for disinfecting purposes, one pound. When the composition is made up in liquid form, the same proportion of the muriate of soda and sulphate of alumina, with one quarter pound of crude carbolic acid to, say, fifty gallons of water. Nov. 22. 1911.

PATENT SPECIFICATIONS PUBLISHED DECEMBER 14, 1911.

Selected by Mr. James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 21604. Sept. 16, 1910.—E. B. Pollatschek, 383 Boite Postale, Alexandria, Egypt. Improvements in or relating to incandescent burners for liquid fuel.

No. 26611. Nov. 16, 1910.—J. B. Colbran, 58 Chiswell Street, E.C. Improvements in and relating to inverted incandescent gas burners.

No. 26759. Nov. 17, 1910.—James Johannes, 15 Canal East Street, Calcutta. Improvements relating to the treatment of lac.

No. 27002. Nov. 21, 1910.—H. G. Atkinson, 54 Hillcrest Road, Acton, and F. F. Scruby, 28 Pleydell Avenue, Chiswick. Moulded and decorated panel (fibre) boards.

No. 27067. Nov. 21, 1910.—Carl Jost, Standard Building, Hornby Road, Bombay. Improvements in or relating to air cooling and purifying devices.

No. 27186. Nov. 22, 1910.—F. T. Dunn, "Bonair," Park Lane, Congleton, Cheshire. Improvements in machines for measuring tiles or other articles.

No. 27250. Nov. 23, 1910.—The Douglas Manufacturing Company, Ltd., St. Stephen's House, Victoria Embankment, and William Meaby, 51 Cottage Grove, Southsea. Improvements in or relating to door bolts and fastenings of a like character.

No. 27280. Nov. 23, 1910.—W. W. Pilkington, "The Hazels," Prescot, Lancashire. Improvements in the method of, and means for, cooling glass plates.

No. 27465. Nov. 25, 1910.—Mrs. Ernestine Levesque, Pontpoint (Oise), France, and Lucien Franchemont, 7 Place Carnot, Creil (Oise), France. Portable stone saw.

No. 28450. Dec. 7, 1910.—M. J. Adams, The Red House, Stocksfield-on-Tyne. An improved flushing arrangement.

No. 28644. Dec. 9, 1910.—Walter Eichelkraut, 6—8 Seehofstrasse, Zehlendorf, near Berlin, architect. Improvements in apparatus for regulating and controlling the access of persons to cashiers' windows and like payment apertures.

No. 28996. Dec. 14, 1910.—Robert Thomson, architect, and W. A. Thomson, 164 Nithsdale Road, Pollokshields, Glasgow. Improvements in walls.

No. 29095. Dec. 14, 1910.—Geo. Lunney, Ingleborough View, Bentham, Yorks. Improvements in fire or similar hose couplings of the screw type.

No. 648. Jan. 10, 1911.—William Gilbert, 47 Victoria Street, S.W. Improvements in mixers for Portland cement and the like.

No. 926. Jan. 13, 1911.—A. C. Stevens, "Lulworth," Queen's Road, Hounslow. Improvements in tubular locks.

No. 1893. Jan. 25, 1911.—James Muirhead, 530 Gairbraid Street, Maryhill, Glasgow. Improvements in ventilating appliances for buildings.

No. 2339. Jan. 30, 1911.—Chas. Hart, Oakland, Alameda, California, U.S.A. Improvements in storage tanks of hot water systems.

No. 2703. Feb. 2, 1911.—Carolus Casteleyn, Zeebrugge, Belgium. An improved waterproofing composition.

No. 2906. Feb. 4, 1911.—Miroslaus Matgorzewick, 1 Marschalkowska, Warsaw, and Josef Krysinski, 16 Fokal Street, Warsaw. Improvements in door locks.

No. 3381. Feb. 10, 1911.—Henry Wakerley, 116 Bankes Road, Small Heath, Birmingham, and Walter Wakerley, 313 Charles Road, Small Heath, Birmingham. A device for securing papers to drawing boards, notice boards and the like.

No. 3663. Feb. 14, 1911.—E. O. Smith, 79 St. Stephen's Road, Preston, Lancashire. Anti-rattling device for sliding doors and the like.

No. 4902. Feb. 27, 1911.—Thomas Glover, Gothic Works, Angel Road, Edmonton. Improved construction of elbow or bend for metal pipe flues or the like.

No. 7157. March 22, 1911.—A. W. Colenutt, "Mayfield," Sandown, Isle of Wight. Improvements relating to multiple bolt fastenings for doors and the like.

No. 8301. April 3, 1911.—Thomas Glover, Gothic Works, Angel Road, Edmonton. Improved construction of valve.

No. 8622. April 6, 1911.—W. H. Rymer, 87 Merton Road, Bootle, Liverpool. Improvements in flexible coverings for roofs, walls, and the like.

No. 8976. April 11, 1911.—E. T. Hendee, 16th and Rockwell Streets, Chicago. High-speed friction saw.

No. 9368. April 15, 1911.—Mrs. Marie Hildebrand, 4 Schramm Strasse, Wilmersdorf, Berlin. Improvements in and relating to heat-interchangers.

No. 9430. April 18, 1911.—A. W. Colenutt, "Mayfield," Sandown, Isle of Wight. An improved locking device for doors and the like.

No. 9845. April 22, 1911. Convention application, April 23, 1910. K. & Th. Moller-Gesell, mit Beschrankter Haftung, Brackwede, Westphalia. Improvements in or relating to filters for air.

No. 10029. April 25, 1911.—Emmanuel Bossut, 17 Rue de la Gare, Roubaix, France, and Paul Renart, 97 Rue Victor Hugo, Roubaix. Improvements in dust separating apparatus.

No. 10536. May 1, 1911. Convention application April 29, 1910.—Firm Franz Schonweitz, 21 Knauerstrasse, Hamburg. Process for the manufacture of objects imitating marble, quartz, or majolica.

No. 11098. May 8, 1911.—Andres Giacometti, 90 Route de Gonesse, Stains (Seine), France. Device applicable to locks for wedging the bars of doors.

No. 11638. May 13, 1911.—J. H. Siemens, Obrienstr., Heligoland, Germany. An improved fire escape.

No. 11930. May 17, 1911.—G. R. Tellander, 4 Kungsportsavenyen, Goteborg, Sweden. Improved ventilation valve.

No. 11960. May 18, 1911.—Geo. Field, 56 Holloway Road, Birmingham. Improvements in or relating to ventilators.

No. 13106. May 31, 1911. Convention application Aug. 29, 1910.—Horace Chrisman, Edgewood Park, Alleghany. Improvements in apparatus for measuring or indicating the flow of fluid from a conduit.

No. 14751. June 21, 1911.—G. J. Money, 39 Rochester Road, London. Improvements in or relating to fastening devices or latches for doors, windows or the like.

No. 15727. July 6, 1911.—Heinrich Bebie, 8 Mozart Strasse, Altona-Bahrenfeld, Germany.—Device for fixing windows, window shutters and doors in open position.

No. 15862. July 8, 1911.—F. S. Worsley, "Windermere," Orchard Road, Erdington, Warwick. Improved clutch mechanism for the detachable attachment of arc lamps or other appliances to a post or high up support or suspender.

No. 16451. July 17, 1911.—H. W. Sanderson, of The Wall-Paper Manufacturers, Ltd., A. Sanderson & Sons' branch, Chiswick. Improvements in apparatus for use in the production of printed and embossed wall papers and the like.

No. 23368. Oct. 23, 1911.—Franz Sierling, Altfriesack, nr. Wustrau, Ruppin, Germany. Improvements in dust filters.

THE NEW BULLOCK SLAUGHTER-HOUSES AT THE METROPOLITAN CATTLE MARKET, ISLINGTON.

One of our great-grandmothers (whose pictured presentment, painted by her grandson, gazes down upon us as we write) was wont to use the phrase, "As ignorant as bull-beef." Wherein lies the especial quality of nescience on the part of this marketable commodity, we know not, but we are fain to profess our sympathy with bullocks, if they cannot intelligently appreciate the fine new buildings provided for their——? well, not their delectation, perhaps, but for their reception. Compared with the neighbouring houses, erected only six or seven years ago, the advance is noteworthy; in fact, the new houses are supposed to represent the penultimate, even if it be not claimed for them that they represent the ultimate phase in abattoir development.

We may, however, be permitted to suggest that humanitarians would disapprove of two animals being slaughtered in each other's presence; and it would have been preferable if the Corporation had expended the comparatively little more in order to provide separate abattoirs for each animal. And it may also be suggested that the notices to be affixed on the doors between the pens and the houses should appear on the face toward the former rather than the latter (as we noticed in the older houses), for it is conceivable that under existing conditions the men engaged may on many occasions overlook the injunction to shut the doors; consequently there is no assurance that the animals in waiting will not be conscious, "through the medium of hearing, sight and smell," of the tragedies being enacted on the other side of the wall.

There are five slaughter-houses, each 29 feet in depth with widths of 25 feet centres; sliding doors give entry from the pens, two of the latter appertaining to each house. There is a complete equipment of overhead running tracks; and an electric hoist for lifting the animals after slaughter (two hoists to each house) is an innovation in England, though not unknown on the Continent. Six hundred animals can be dealt with per day. To promote cleanliness, glazed bricks line the walls and blue Pennant stone is used as a paving.

A wide gangway separates the abattoirs proper from the range of five chill-rooms; the refrigerating machinery is supplied by the Haslam Foundry Engineering Co. of Derby, and it can deal simultaneously with 440 sides (that is to say, 220 carcases), the temperature employed being 34° Fahr.

Mr. G. J. Berridge, Chairman of the Cattle Markets Committee, performed the simple opening ceremony on Friday, 1st inst., and he received from the contractors a gold key as a memento of the function. He took occasion to refer to the serious diminution in the supply of home-bred cattle. The encomiums that he passed upon the City Surveyor, Mr. Sydney Perks, F.R.I.B.A., who designed the buildings, and upon the contractors, Messrs. William Johnson & Co., Ltd., of Wandsworth Common, are well merited. A sum of over £60,000 has been expended by the Corporation upon these buildings, which are in substitution of the private slaughter-houses that formerly existed in this market.

SPRINKLERS IN AN EDINBURGH THEATRE.

In addition to existing precautions against the possible outbreak of fire in the King's Theatre, Edinburgh, the proprietors of the theatre, the Edinburgh Construction Co., Ltd., have introduced an installation of Mills' "Titan" sprinklers into the stage part of the building. A successful demonstration of the working of the sprinklers was given on December 14 in the workshop underneath the stage. Amongst those who witnessed the demonstration were Dean of Guild Carter, Councillor Smith Elliot, Mr. Pordage, Firemaster, the Chairman of the Directors, and Mr. Robert Wyllie, representative in Scotland of Messrs. Mills & Co., Ltd., Radcliffe, near Manchester. For the purposes of the demonstration a large heap of dry shavings was collected on the floor of the stage workshop and saturated with inflammable oil. The material was set alight, and within half a minute the sprinkler on the roof above had fused, and a stream of water descended automatically on to the flames. In a short time the flames had been extinguished. Immediately the sprinkler acted the gong on the outside of the theatre resounded loudly, attracting much attention, and at the same time the May-Oatway alarm gave warning to the Fire Brigade, and within about three minutes a steamer and tender were at the theatre prepared to deal with an outbreak, but the fire was already out. Alluding afterwards to the success of the experiment, Dean of Guild Carter thanked the directors for the opportunity which had been afforded of witnessing it, and expressed the hope that the occasions for the use of the sprinklers would be few and far between. The Chairman of the Directors said the object of the installation was the additional security of the community. They had done everything they could think of to prevent the outbreak of fire, and to ensure the safety of the public. He mentioned incidentally that the installation of the sprinkler would involve a reduction in the matter of insurance. Councillor Smith Elliot remarked on the celerity with which the Fire Brigade appeared on the scene after the alarm had been given.

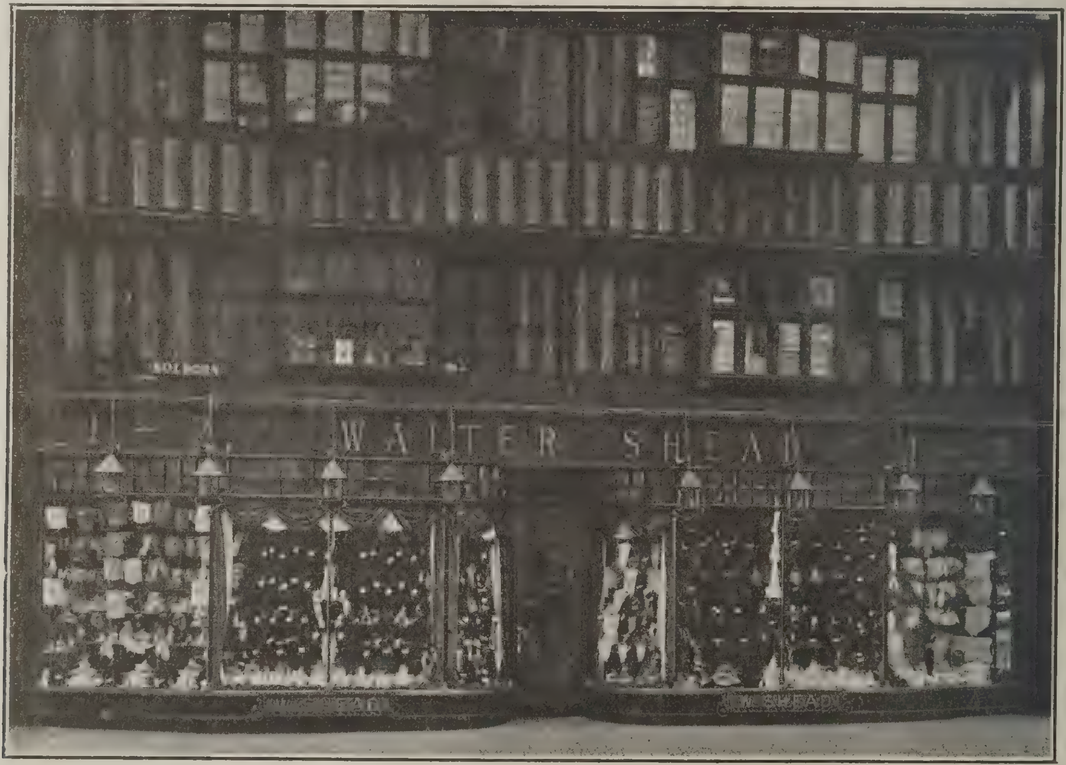
SHOP FRONTS.

There can be no class of men more alive to the necessity of presenting an attractive "outside" to the world than shopkeepers, for they know to the full how apt everybody is to judge by appearances. In their experience the setting is half the battle. It is no wonder that window-dressers are said to earn handsome salaries, and that there is keen competition for the foremost of these artists. But the best endeavours they can make must be more or less conditioned by the stage on which they cunningly display their wares, *i.e.* by the shop fronts. This truth, obvious though it may appear, was not at first realised. Owners were content with slipping in a girder on the ground floor ceiling line to carry the weight above, and then filling the void below with a plain expanse of glass. The result was displeasing to the artistic eye, and also to the owner when he realised that it did not take full advantage of possibilities. Of later years there has been very great ingenuity shown in providing fronts that would attract the most critical, and yet without sacrifice of their capacity for display.

In this class of construction the reputation of Messrs. Stanley Jones & Co., Ltd., 8 Gray's Inn Road, W.C., is secure. Their work as shopfitters is to be seen all over the country, for the reason that among their customers are companies having branches in both the large towns and small villages. It is produced under exceptionally favourable circumstances at their new freehold model factory at Stowe Road, Shepherd's Bush, W., which covers over two acres. They claim it to be the finest of its kind in the trade, and that it enables them to execute contracts at a saving of from 10 per cent. to 15 per cent. against the prices quoted by competitors who are handicapped by heavy London rents and taxes. This factory is fully equipped with the latest labour-saving plant, which enables them to execute any size contract expeditiously, cheaply, and satisfactorily.

The Company have just issued a brochure which reproduces photographs of some of their recent contracts. The ones we particularly like are those showing the premises of (1) Messrs. W. H. Smith & Son, 100 Westbourne Grove, W.; (2) Messrs. Tecla, 30 Old Bond Street, and 8 New Bond Street, W.; (3) Messrs. Waring's, Ltd., Oxford Street, W. (which were the first fronts of importance in London made on their arcade and island showcase principle); and (4) of Mr. W. Shead, 1 and 2 Holborn, E.C. Some of the photographs show the very important interior fittings. In this latter connection we may mention that Messrs. Stanley Jones & Co., Ltd., received an order from the Board of Trade for 15,000 feet of show cases for the recent Brussels Exhibition. Shop fronts are, of course, a matter of taste, and so it may seem invidious for us to single out the above examples. It is open for everyone to make their own selection.

Our illustration suggests how the firm grappled with the difficult problem of inserting a new shop front into the old half-timber buildings at Holborn Bars. The front is carried out in teak, and is perfectly plain. Although it is modern to a certain extent, it cannot be said to clash with the overhanging floors above.



THE ENLARGEMENT OF THE GUILDHALL, LONDON.

In the course of a short while, plans will be presented for rebuilding the blocks of offices on the east side of Guildhall Yard in order to provide additional accommodation for the Lord Mayor's Court and the Art Gallery. The plans, the *City Press* understands, have been approved by the four committees immediately concerned, and now the sole question to be decided is whether the Court of Common Council will grant the money needed for carrying out the scheme. The sum involved is said to be about £50,000. The idea is to sweep away completely the existing buildings from the Guildhall Yard to the Guildhall Tavern, including the Irish Chamber; and to erect on the site a new block according to a design harmonising with the architecture of the Guildhall itself. The buildings on the west side are also, we understand, to be dealt with in like fashion. Under the plans, the Art Gallery, which at present is housed under conditions the very reverse of favourable, will be provided with three magnificent galleries, each seventy feet in length, together with a number of smaller rooms, equally suitable for the exhibition of the art treasures the City possesses. For a long time the Library Committee have felt the necessity of extension—not only for the suitable housing of the pictures at present possessed, but in order that they may appeal with success to art patrons for the presentation of pictures which will make the collection really worthy of the City of London. The Art Gallery under the scheme will occupy the top floors; while the Mayor's Court, Irish Chamber, and other business departments will be accommodated on the ground floor and basement. The thoroughfare from the Guildhall Yard to Basinghall Street will be bridged over so as to make the line of buildings continuous from the Guildhall itself to the Guildhall Tavern.

THE

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⁂ *Entered in the United States of America as second-class matter.*

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The International News Co., 5 Bream's Buildings, Chancery Lane, London, England, and New York.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

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EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit the insertion of lengthy communications.

TENDERS, ETC.

⁂ *As great disappointment is frequently expressed at the nonappearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2* p.m. *on Thursdays.*

COMPETITIONS OPEN.

Australia.—Jan. 31.—The Government of the Commonwealth of Australia invite competitive designs for the laying-out of the Federal Capital City, and offer premiums of £1,750, £750, and £500. The conditions under which designs are invited, together with plans and instructions, may be obtained from the High Commissioner for Australia, 72 Victoria Street, S.W. Designs must be delivered to the Department of Home Affairs, Melbourne, Australia, by January 31, 1912. Mr. K. O'Malley, Minister of State for Home Affairs.

Banbury.—Jan. 8.—The Town Council invite designs by January 8 for workmen's dwellings to be erected within the borough. Applications for particulars, accompanied by 10s. deposit, which will be returned on receipt of bonâ-fide designs, should be made to Mr. Arthur Stockton, town clerk, Town Hall, Banbury.

Bolton.—Jan. 6.—The Lancashire and Cheshire Miners' Federation invite architects in independent practice within a radius of twenty-five miles of the Town Hall, Bolton, to submit in competition designs for the proposed central hall, offices, and caretaker's quarters, Bolton. Mr. Jonathan Simpson, F.R.I.B.A., will act as assessor. Premiums of £50 and £25 are offered. Deposit £1 1s. Messrs. Fielding & Fernihough, solicitors, 7 Fold Street, Bolton. N.B.—The time for sending in applications and designs has been extended from Dec. 1 to Jan. 6.

Bolton.—The King Edward VII. Memorial Fund Committee invite competitive plans from architects now practising as principals within the county borough of Bolton for the King Edward VII. Memorial Nurses' Home proposed to be erected at the Bolton Infirmary. Plan of the site and instructions may be obtained upon payment of £1 1s., which

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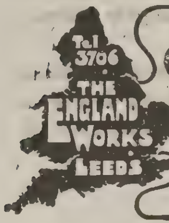

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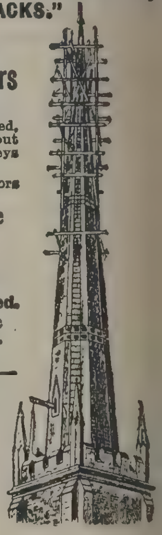

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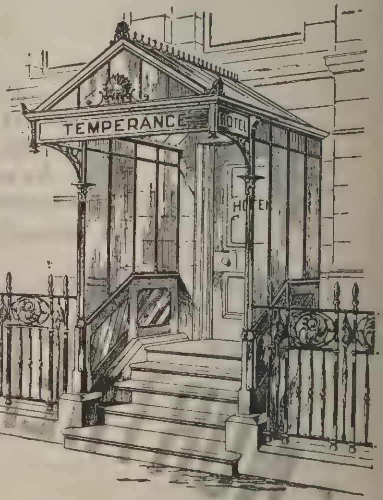

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sum will be returned to the competitors provided they shall have sent in *bona fide* plans and particulars and shall have returned all documents, plans, &c. Mr. Samuel Parker, hon. secretary of the Committee, Town Hall, Bolton.

Ireland.—Jan. 9.—The Magherafelt Technical Instruction Committee invite competitive designs for a technical school, proposed to be erected in Magherafelt, the total expenditure, including provision of sewerage and water supply, not to exceed £1,200. Mr. W. D. Cousins, County Technical Office, Courthouse, Coleraine.

London.—Feb. 17.—The Port of London Authority invite preliminary sketch designs in competition for head offices proposed to be erected in Trinity Square, and for the laying out of the remainder of the land as a building site. From the sketches submitted the authors of not more than six designs will be selected to submit designs in a final competition at an honorarium of 200 guineas each, the Authority reserving to themselves the right, on the advice of their assessor, to invite not more than six other architects to send designs in the final competition. The assessor appointed is Sir Aston Webb, R.A. Conditions of the competition, with full particulars of the accommodation required, plan of the site, and photographs of the adjoining buildings, can be obtained on application, on payment of £1 1*s*., which sum will be refunded on receipt of a bona-fide design, or on the return of the particulars within three weeks, to The Secretary, Port of London Authority, 109 Leadenhall Street, E.C.

Spennymoor.—Jan. 9.—The Urban District Council invite competitive plans and designs for a public hall, market, and offices, &c. Particulars may be obtained on payment of a deposit of £2 2*s*., which will be returned on receipt of a *bona fide* design. Premiums of £50, £25, and £10 are offered. Mr. F. Badcock, clerk, Council Offices, 3 James Street, Spennymoor. (See advertisement.)

Stafford.—Jan. 6.—The Corporation invite designs for a public library. An assessor has been appointed. Send £1 deposit, which will be returned on receipt of a bona-fide design, or the return of the conditions, &c., within one month of receipt. Mr. William Plant, A.M.Inst.C.E., borough engineer, Borough Hall, Stafford.

Uruguay.—Jan. 30.—The Ministry of Public Works invite competitive plans for a town-improvement scheme and for a new Government Palace at Monte Video. Premiums of about £1,060, £640, and £425 are offered for the former scheme, and about £2,215 and £850 for the latter. Designs for the Government Palace must be submitted by Jan. 29, 1912, and for the town-improvement scheme by Jan. 30. A statement of the conditions of the competition (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Wales.—March 15.—Lord Aberconway and the Trustees of the Prestatyn estate, North Wales, invite designs for the laying out of the estate. Premiums of £50, £30, and £20. Assessor, Mr. H. V. Lanchester, F.R.I.B.A. Send applications for conditions, plan, and bye-laws, with 10*s*. 6*d*. deposit (which will be returned on receipt of *bona fide* designs or return of the conditions, &c., within fourteen days of receipt), by January 8, to Lord Aberconway and the Trustees of the Prestatyn Estate, 33 Henrietta Street, Strand, W.C.

CONTRACTS OPEN.

Barking.—Jan. 5.—For erection of an elementary school (in three blocks) in the Ripple Road, together with caretaker's house, out-buildings, boundary walls, fencing, and drains, the school to accommodate 1,338 children, for the Education Committee. Deposit £2 2*s*. Mr. C. J. Dawson, F.R.I.B.A., architect, 16 Cambridge Road, Barking, Essex.

Barrow-in-Furness.—Jan. 3.—For the whole of the works in one contract in connection with the erection of three pairs of semi-detached cottages, one detached cottage and outbuildings, on the Bridgegate estate, for the Corporation. Borough Engineer's Office, Town Hall.

Berwick-upon-Tweed.—Jan. 6.—For alterations proposed to be made to the old infant school in College Place, in converting the same into a centre for evening classes. Messrs. Gray & Boyd, architects, 2 Ivy Place, Berwick-upon-Tweed.

Bradford.—Dec. 31.—For the various works required in erection of a warehouse at North Wing, Bradford. Send names by Dec. 31 to Mr. Wm. Illingworth, architect, 9 Market Street, Bradford.

Braughing.—Jan. 3.—For building four cottages at Braughing, Herts., for the Hadham Rural District Council. The Council's Offices, 29 North Street, Bishop's Stortford; or Mr. Andrew Weir, Ford Street Farm, Braughing.

Buglawton.—Jan. 4.—For the erection of proposed Council school at Buglawton, near Congleton, Cheshire. Deposit £1 1*s*. Messrs. A. Price & Son, architects, Sandbach.

Camborne.—Jan. 6.—For additions and alterations to the Camborne Roskear Council school, Cornwall. The Master's residence, or Mr. S. Hill, architect, Green Lane, Redruth.

Caterham.—Jan. 11.—For erection of Roman Catholic school, Caterham, Surrey, to accommodate 100 children. Deposit £1. Mr. W. Bevan, F.R.I.B.A., architect, 85 Lansdowne Road, Croydon, or the Presbytery, Caterham, Surrey.

Chacewater.—Jan. 6.—For alterations and improvements to the Chacewater Council school, Cornwall. Mr. S. Hill, architect to the committee, Green Lane, Redruth.

Chirbury (Salop).—Jan. 13.—For erection of a village hall. Mr. W. Riddell, The Estate Timber Yard, Powis Castle.

Cirencester.—Jan. 13.—For the erection of 24 houses in Siddington Road, for the Urban District Council. Send names and £2 2s. deposit by Dec. 30 to Mr. V. A. Lawson, A.M.I.C.E., Council Buildings, Cirencester.

Coventry.—Jan. 24.—For erection of a public elementary school, to accommodate 1,148 children, at Centaur Road. Mr. F. Foster, architect, Masonic Buildings, Little Park Street, Coventry. Send names and £1 1*s*. deposit by Jan. 1 to the Education Office, Priory Row, Coventry.

Crakehall.—Jan. 17.—For the whole of the work connected with erection of a new elementary school at Crakehall, Yorks, for 100 children. Rev. E. T. G. Hunter, Crakehall Vicarage, Bedale.

Derby.—Jan. 4.—For the erection of additional offices for telegraph superintendent at Derby, for the Midland Railway Co. The Engineer's office, Midland Railway, Derby.

Dunstable.—Jan. 4.—For erection of additions to the Chiltern Road school, Dunstable, Bedfordshire. Deposit £1 1*s*. The County Surveyor, Shire Hall, Bedford.

Edenbridge.—Jan. 5.—For erection of a special subjects building at Edenbridge, Kent. Send names and £1 deposit by Dec. 18 to Mr. F. W. Crook, secretary, Caxton House, Westminster, S.W.

Fakenham.—Jan. 11.—For erection of new school at Fakenham and for the erection of cookery and manual instruction rooms on the same site, for the Norfolk Education Committee. Send names and 1*l*. 1*s*. deposit by Dec. 23 to Mr. H. J. Green, architect, Castle Meadow, Norwich, and Paradise Chambers, King's Lynn.

Great Yarmouth.—Jan. 2.—For erection of a new art school at Trafalgar Road. The Borough Surveyor, Town Hall, Great Yarmouth.

Guildford.—Jan. 6.—For the erection of 20 cottages in Cline Road. Deposit £2 2*s*. Mr. A. D. Jenkins, Town Clerk, Bridge Street, Guildford, Surrey.

Hale.—Jan. 5.—For the conversion of the girls' home, Ashley Road, into public offices, for the Hale Urban District Council. Mr. F. H. Brazier, A.R.I.B.A., architect, Bank Chambers, Ashley Road, Hale, Cheshire. Send £1 1*s*. deposit to Mr. Whyatt, clerk, Council Offices, Ashley Road, Hale, Cheshire.

Halifax.—Jan. 18.—For the execution of works in connection with the extension of the sludge-pressing works, gauge weirs, lime-mixing plant, &c., at the sewage disposal works, Copley, for the Highways Committee—viz.: (Contract No. 33) bricklayer's and mason's work (deposit £10); (34) plumber's work (deposit £1); (35) slater's work (deposit £1); (36) steelwork (deposit £1); (37) painter's work (deposit £1); (38) supply and erection of three sludge presses and appurtenances (deposit £10); (39) one lime-mixer and pump (deposit £5); (40) penstocks (deposit £1). Mr. J. Lord, M.I.C.E., borough engineer, Town Hall, Halifax.

Horton-in-Ribblesdale.—Jan. 12.—The West Riding Education Committee invite whole or separate tenders for the following works at Horton-in-Ribblesdale Helwill Bridge new school—viz. builder, joiner, slater, plumber, plasterer, and painter. The Education Architect, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Hull.—Jan. 8.—For the necessary work to be performed in erection of a school in Saner Street. Deposit £2 2*s*. Mr. J. H. Hirst, city architect, Town Hall, Hull.

Ilford.—Jan. 23.—For erection of a public elementary school for 700 children on the site adjoining the existing South Park School. Deposit £5 5*s.* Mr. C. J. Dawson, F.R.I.B.A., architect, 11 Cranbrook Road, Ilford.

Ireland.—Jan. 2.—For erection of stores at their creamery, for the Ballymote Agricultural and Dairy Society. Mr. J. J. Cooke, manager, Ballymote.

Lincolnshire.—Jan. 11.—For erection of cottages in the parishes of Lutton, Tydd St. Mary, Sutton St. James, Fleet, and Whaplode, for the East Elloe Rural District Council. Mr. R. H. Holmes Hand, Spalding.

London.—Jan. 4.—For the extension of Hampstead sorting office, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s.* Mr. J. Rutherford, 22 Carlisle Place, London, S.W.

London.—Jan. 10.—The Guardians of the Poor of the Parish of St. Giles, Camberwell, invite tenders for the erection of additional accommodation for nurses at their Workhouse, Constance Road, East Dulwich, S.E. Deposit £2 2*s.* Mr. A. E. Mullins, architect, 48 Peckham Road, Camberwell, S.E.

London.—Jan. 11.—The Guardians of the Poor of the Southwark Union are desirous of receiving tenders for the erection of a medical officer's house, nurses' home, and alterations to their infirmary, East Dulwich Grove, S.E. Deposit £10. Mr. A. Saxon Snell, F.R.I.B.A., 22 Southampton Buildings, Chancery Lane, W.C.

Manchester.—Jan. 6.—For the following work, &c., for the Manchester Education Committee—viz.: (1) erection of the municipal school of domestic economy, High Street, Chorlton-on-Medlock (deposit £2 2*s.*); (2) supply of red terra cotta (deposit £1 1*s.*); and (3) supply of buff terra cotta in connection therewith (deposit £1 1*s.*). The Education Offices, Deansgate, Manchester.

Middlesbrough.—Jan. 8.—For alterations and additions to the police residences at the back of the Cannon Street police station. Mr. S. E. Burgess, M.I.C.E., borough engineer, Municipal Buildings, Middlesbrough.

Milnrow.—Jan. 5.—For erection of an elementary school at Milnrow, near Rochdale, to accommodate 400 children, for the Lancashire Education Committee. Deposit £2. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

Owston.—Jan. 12.—The West Riding Education Committee invite whole or separate tenders for the following works at Owston, Carcroft new school—viz., builder, joiner, tiler, plumber, plasterer, painter, ironfounder, and asphalter. The Education Architect, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Penzance.—Jan. 6.—For the erection and completion of a county school for girls at Treneere, Penzance, Cornwall. Mr. O. R. Caldwell, architect, Penzance, or Mr. Sampson Hill, architect to the committee, Green Lane, Redruth.

Portsmouth.—Jan. 5.—For the demolition of old premises and the extension of Portsmouth head post office. Deposit £1 1*s.* The Postmaster at Portsmouth Head Post Office, and H.M. Office of Works, &c., Storey's Gate, S.W.

Richmond (Yorks).—Jan. 8.—For alterations and additions to police station, Victoria Road. Apply at the Police Station, Victoria Road, Richmond, Yorks.

St. Minver.—Jan. 6.—For erection of a master's house, and making certain improvements and additions to school buildings, offices, and playground at the St. Minver Council School, Cornwall. Mr. W. H. Male, St. Minver, or Mr. B. C. Andrew, architect to the committee, Biddick's Court, St. Austell.

Sheffield.—Jan. 3.—For the following works required in the erection of filter-house at Low Bradfield, near Sheffield, for the Water Committee—viz.: (1) general building work; (2) structural steelwork. The City Architect, Town Hall, Sheffield.

Sheffield.—Jan. 3.—For erection of Sheffield, Attercliffe, new telephone exchange, for the Commissioners of H.M. Works and Public Buildings. Deposit £1 1*s.* The Postmaster at Sheffield Head Post Office, and at H.M. Office of Works, &c., Storey's Gate, S.W.

Silkstone.—Jan. 12.—The West Riding Education Committee invite whole or separate tenders for the following works at Silkstone new school—viz. builder, joiner, slater, plumber, plasterer, painter, and ironfounder. The Education Office, County Hall, Wakefield. Send £1 deposit to the West Riding Treasurer, County Hall, Wakefield.

Sunderland.—For the whole of the work required in the erection and completion of proposed Primitive Methodist school, Pallion Road. Send names as early as possible to Mr. J. W. F. Phillipson, M.S.A., architect, Murton Chambers, 8 Grainger Street, Newcastle-on-Tyne.

Thatcham.—Jan. 13.—For building a new school for 216 children at Thatcham, Berks. Send names and £3 3*s.* by Jan. 1 to the Secretary to the Berkshire Education Committee, The Forbury, Reading.

Tottenham.—Jan. 16.—For erection of an underground convenience at Bruce Grove, Tottenham. Mr. W. H. Prescott, M.I.C.E., engineer, Council Buildings, The Green, Tottenham.

Truro.—Jan. 16.—For supplying screens, platforms, and furniture for the Council chamber of the new offices at Truro, for the County Council. Messrs. T. B. Silcock, B.Sc., F.S.I., & S. R. Reay, F.R.I.B.A., architects, 47 Milsom Street, Bath, or Mr. W. J. Mock, county accountant, Truro.

Wales.—Jan. 5.—For the erection of a culvert bridge and wing walls at Aberporth, for the Cardigan Rural District Council. Mr. D. Davies, clerk, Cardigan.

Wales.—Jan. 5.—For the following works, for the Breconshire Education Committee—namely: Crickhowell Council School, erection of cloakrooms and sundry other alterations to the existing building; Llanganten Council School, addition of class room (32 places), cloakrooms, &c., and sundry alterations to the existing building; Talgarth Council School, erection of girls' cloakroom and other works. Mr. C. W. Best, surveyor to the committee, County Hall, Brecon.

Wales.—Jan. 8.—For erection of a Council school building at St. Ishmaels, in the county of Pembroke. Mr. D. E. Thomas, architect, 17 Victoria Place, Haverfordwest.

Wales.—Jan. 8.—The Royal National Lifeboat Institution are prepared to receive tenders for the construction of a reinforced concrete (Considère system) lifeboat launching slipway and reinforced concrete and steel approach gangway on the north-west side of Mumbles pier, The Mumbles, in the county of Glamorganshire, upon the sea bed thereat. Mr. F. le Boulanger, hon. secretary, Mumbles Hill, Mumbles, Glamorganshire; or Mr. W. T. Douglass, M.Inst.C.E., 15 Victoria Street, Westminster, S.W.

Walthamstow.—Jan. 11.—For erection of a county high school for 300 girls at Church Hill, Walthamstow. Deposit £5. Mr. C. J. Dawson, F.R.I.B.A., architect, 11 Cranbrook Road, Ilford, Essex.

West Ham.—Jan. 15.—For alterations and additions to Colegrave Road and Water Lane schools, Stratford, for the Education Committee. Send names and £5 deposit by Jan. 1 to Mr. William Jacques, A.R.I.B.A., architect to the Education Committee, 2 Fen Court, Fenchurch Street, E.C.

Whalley.—Feb. 12.—For the completion of the erection of the County Asylum for 2,000 patients. Deposit £10. Mr. H. Littler, architect, 16 Ribblesdale Place, Preston.

Wheal Buller.—Jan. 4.—For erection and completion of proposed Wesleyan church at Wheal Buller, near Redruth. Mr. S. Hill, architect, Green Lane, Redruth.

Yeovil.—Jan. 1.—For erection of 146 houses at Yeovil, for the Town Council. Mr. H. B. Batten, town clerk, Yeovil.

The Incorporated Church Building Society held its usual monthly meeting on Thursday, the 21st inst., at the Society's House, 7 Dean's Yard, Westminster Abbey, S.W. Grants of money were made in aid of the following objects, viz.: Building a new church at Furness Vale and Newtown, St. John the Baptist, Cheshire, £80; rebuilding the church of St. James, Manston, Yorks, £125 for the first portion; and towards enlarging the churches at East Hanney, St. James-the-Less, Berks, £10; and Hoole, All Saints, near Chester, £60. Grants were also made from the Special Mission Buildings Fund towards building mission churches at Caergeiliog, St. David, Anglesey, £10, making in all £40; Leeming Bar, Bedale, Yorks, £25; Oswestry, St. David's, Welsh Church, Salop, £30; and Two Mile Hill, St. Michael, near Bristol, £50. The following grants were also paid for works completed: Halifax, St. Hilda, £200; Caversham, St. Andrew, Oxon, £50, making in all £150; Gwytherin, St. Eleri and St. James, North Wales, £20; Blackrod, St. Katharine, Lancs, £80; Cockfield, St. Mary, co. Durham, £60; Slade Green, St. Augustine, Kent, £100; Friern Barnet, St. John, Middlesex, £105; Clifton Campville, St. Andrew, Staffs, £50; Chillington, St. James, Somerset, £10; Millbrook, St. Nicholas, near Southampton, £15; Walton-on-the-Hill, St. Mary, Liverpool, £50; Ilkeston, St. John, Derbyshire, £70; Birmingham, St. Basil, £130; Furzedown, St. Paul, Surrey, £50; and Edmonton, St. John, Middlesex, £40. In addition to this, the sum of £300 was paid towards the repairs of fifteen churches from trust funds held by the Society.

TENDERS.

CHILDREY.

For erection of a Council school to accommodate 138 scholars, for the Berkshire Education Committee.

Wheeler	£2,580	0	0
H. & C. Spackman	2,235	18	1
Hughes	2,439	0	0
Elms	2,409	0	0
Cox	2,342	10	0
Bosher & Sons, Cholsey (*recommended*)	2,290	0	5

GREAT YARMOUTH.

For erection of a boys' school at Cobholm Island, for 440 children. Mr. J. W. Cockrill, M.I.C.E., borough surveyor, Great Yarmouth.

Wright	£5,290	0	0
Beech	4,227	0	0
Grimble	4,149	0	0
Balls	3,984	0	0
Ditcham & Lamb	3,950	0	0
Carter & Wright	3,916	0	0
Moore & Sons	3,898	0	0
J. Eastoe, Great Yarmouth (*accepted*)	3,890	0	0

HANLEY.

For erection of bottling stores, &c., for Messrs. A. Chew & Co., Ltd. Mr. C. G. Cowlishaw, architect, Hanley.

Cooke	£1,680	0	0
Leonard	1,615	0	0
Ball	1,600	0	0
Grants	1,600	0	0
Thomas & Son	1,598	0	0
Chatfield	1,570	0	0
Ellis	1,567	0	0
Cornes & Son	1,529	10	0
Heath	1,499	0	0
Wardle	1,480	0	0
Godwin, Hanley (*accepted*)	1,477	0	0

HERMITAGE (BERKS.).

For erection of the Hermitage Council School, for 124 scholars, for the Berkshire Education Committee.

A. J. Chivers	£2,849	0	0
Hoskings Bros.	2,734	0	0
Treasure Bros.	2,660	7	7
Collier & Catley	2,523	0	0
Hughes	2,480	0	0
Baker & Son	2,474	11	10
Bosher & Sons	2,365	10	2
Elms	2,349	0	0
Cox, Abingdon (*recommended*)	2,341	13	0

LONDON.

For plastering and painting works to two wards and other rooms at the Infirmary, Highgate Hill, N., for the Guardians of St. Mary, Islington. Mr. Edmund J. Harrison, architect, 9 Gray's Inn Square, W.C.

Preston	£255	0	0
Batchelor & Sons	235	0	0
General Building Co.	230	0	0
Clark & Co.	230	0	0
Wells	225	0	0
Wainton	209	10	0
Martin & Co.	206	13	0
Looseley & Son	198	10	0
Stanton & Mason	196	16	0
Bate Bros.	194	0	0
Brown & Son	189	0	0
Hocking & Son	179	0	0
Strong & Co.	164	17	6
Finch & Co., Ilford (*accepted*)	149	0	0

For provision of sliding poles, formation of wicket gates in the appliance room doors, formation of separate entrances, &c., at the Perry Vale, Homerton, Edgware Road, Shoreditch, and Highbury fire stations, and erection of a look-out tower at the last-named station, for the London County Council.

Leslie & Co.	£1,913	0	0
Downs	1,614	0	0
Holloway	1,547	0	0
Johnson & Co.	1,535	0	0
J. & C. Bowyer	1,487	0	0
Higgs & Hill, Ltd., Crown Works, South Lambeth, S.W. (*recommended*)	1,484	0	0
Architect's estimate	1,227	0	0

TROWBRIDGE.

For proposed Council school, Trowbridge, for the Wiltshire County Council. Mr. J. G. Powell, county surveyor.

Wills & Son	£4,591	0	0
Dunthorn	4,430	0	0
Hayward & Wooster	4,430	0	0
Spackman	4,332	3	8
Colbourne	4,169	0	0
Isley & Co.	4,150	15	8
F. B. Parsons	4,085	0	0
Bigwood & Co.	4,060	0	0
Parsons Bros.	3,997	0	0
Long & Sons	3,937	0	0
Drew & Sons	3,872	0	0
E. Linzey (*accepted*)	3,688	0	0

WALES.

For erection and completion of twelve houses, &c., and new road on the Beaufort estate, Tredegar (Mon.), for the Glanhowy Building Club, at Scwrfa, Dukestown, Tredegar. Messrs. T. Williams & Sons, architects, Tredegar and Bargoed.

Houses.

Williams	£2,524	10	0
Davies & Price	2,450	0	0
Jenkins	2,340	0	0
Miles	2,274	0	0
Ll. Johns	2,220	0	0
Dickinson	2,222	0	0
Edwards	2,210	0	0
W. Cosslett, Ystradmynach (*accepted*)	2,042	0	0

Road and Lanes.

T. Dickinson	£331	0	0
W. Edwards	253	15	0
W. Miles	222	16	0
W. Cosslett (*accepted*)	184	15	0

For additions, alterations, and repairs to the Gwalchmai Council School, Menai Bridge. Mr. Jos. Owen, F.R.I.B.A., county architect, Menai Bridge.

W. D. Williams	£2,201	2	5
R. & I. Williams	1,855	0	0
H. & I. Williams	1,834	5	0
Hughes	1,660	0	0
Jones	1,497	10	0
Architect's estimate	1,695	16	0

WALTHAMSTOW.

For alterations, new partitions, &c., at the Forest Road Infants' School, Walthamstow, N.E., for the Education Committee. Mr. H. Prosser, M.S.A., architect.

Page	£161	15	0
Barton	113	0	0
J. & J. Dean	110	0	0
Sands, Walthamstow (*accepted*)	90	0	0

WALTON.

For the making up of Castle Road. Mr. R. Wilds, surveyor, Walton.

Swaker	£1,350	11	6
Free & Sons	1,224	16	2
Horsell	1,210	12	10
Trueman, Ltd.	1,204	13	0
Ibbett	1,202	15	4
Kavanagh	1,150	18	0
Potterton & Co.	1,134	6	3
May & Sons	1,046	2	3
Nolan & Co.	1,099	0	0

WOLSTANTON.

For erection of infants' school and cookery centre. Mr. W. F. Slater, architect, Burslem.

Sambrook	£6,750	0	0
Broadhurst & Sons	6,390	0	0
Rogers	6,250	0	0
Smith	6,200	0	0
Cooke	6,150	0	0
Wardle	6,050	0	0
Johnson	5,600	0	0
Heath, Basford (*recommended*)	5,528	0	0

The Coseley Education Committee have decided to reopen negotiations with Tipton Education Committee for the purpose of providing a joint school at Princes End, and that the appointment by the Tipton Committee of Messrs. Scott & Clarke as architects be accepted.

CORRESPONDENCE.

[The Editor will not be responsible for the opinions expressed by Correspondents.]

New Parliament Buildings for Manitoba.

Sir,—Herewith I beg to send you copy of a letter which has just reached the High Commissioner from the Hon. Colin H. Campbell, K.C., Minister of Public Works for Manitoba, relative to a competition which is being advertised for plans for the proposed new Parliament buildings at Winnipeg.

Copies of the conditions referred to by the Minister will be supplied to architects who apply to me at this address.—I am, yours faithfully,

W. L. Griffith.

17 Victoria Street, London, S.W.,
December 22, 1911.

(Copy.)

Public Works Department, Manitoba.
Winnipeg, December 8, 1911.

The High Commissioner for Canada,
17 Victoria Street, London, S.W.

My dear Sir,—The Government of the Province of Manitoba are advertising for plans for the new Parliament buildings to be erected in the city of Winnipeg.

I am sending you seventy-five (75) copies of the conditions of the competition.

Architects in the United Kingdom may apply to you and desire a copy of these conditions; if so, we would ask you to kindly supply same.—Yours faithfully,

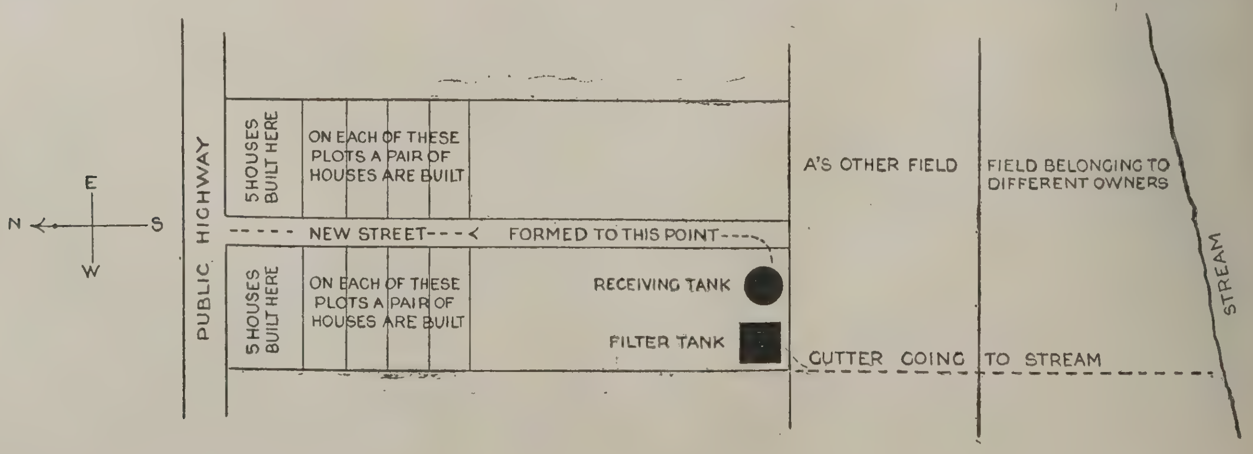
(Signed) Colin H. Campbell.

[H.M. Trade Commissioner for Canada (Mr. R. Grigg) reports to the Board of Trade that the Provincial Government of Manitoba intend to obtain plans at once for new Government buildings at Winnipeg, estimated to cost over 2,000,000 dollars (about £411,000). It is stated that out of the sketch designs about five will be selected, and the competitors submitting them will be invited to make out full specifications and plans, from which a final choice will be made.—Ed.]

ANSWERS TO CORRESPONDENTS.

Drainage (North Riding Architect).—A having complied with the demands of the Rural District Council on several occasions, and also consented to his main drain being used as a public sewer for a considerable time, thus allowing various cesspools to become disused, he cannot now upset existing arrangements by repudiating liability for the result of his own conduct. He should have made definite arrangements with the different owners when they connected their houses with his main sewer, and should have come to terms with the local authority before allowing his drain to become a public sewer. The best thing to do now is to come to reasonable terms if possible with the Rural District authority.

Seven years ago A laid out a field for building. The field is an oblong, one end on the north bounded by a public highway, the other (south) end by another field belonging to A, the two long sides (east and west) of the field bounded by the land of adjoining owners. Beyond A's field on the south was a field owned by another person, and beyond that a stream. Here is a sketch plan showing the field and its surroundings and indicating the laying-out plan of A's building field, which laying-out plan was approved by the Rural District Council in whose district the land is situate:—



Plans for the 26 houses on the indicated plots were at various times extending over three years submitted to and approved by the R.D. Council. All these plans showed "cesspool" arrangements, the district having no sewage system. After a time A, without submitting any plan, put a main drain down the centre of the street, constructed a reception tank and a filter (shown by dots), the overflow from the filter going into the gutter belonging to A at first, from there into the gutter belonging "different owner," and so into the stream. After these constructions the different owners of the houses (about a dozen owners), some with the consent of A, some without, disused their cesspools and connected their houses with the drain which A had put in.

After a time the Rural District Council began to call upon A to abate a nuisance which existed at the tanks. On several occasions A complied with their demands, but as he was under no obligation to the owners of houses to provide sewers and no one had contributed to the cost of sewer and tanks, he refused two years ago to do any more in the way of attending to the sewer or tanks and requested the Rural District Council to make the owners of the various houses put their premises into conformity with the plans which they (the Council) had approved, further stating that he (A) would proceed to take up the main drain which he had put in, fill up the tanks and thus end the matter so far as he was concerned.

The Clerk of the Council then informed A that the Council could not now compel compliance with the deposited and approved plans, that A could not disturb the main drain, which owing to its serving more than a certain number of houses had become a public sewer (and presumably, though he did not say so, vested in the Council as the "authority"), adding that the Council would hold A responsible for any nuisance arising on his (A's) property and further requiring A to so deal with the tanks as to ensure a pure outflow issuing therefrom and so going into the stream. To this demand A has not returned any reply.

It may be well to add that independent of A's property altogether other sewage, some quite crude, goes into the stream.

What is the position as between A, the owners of houses connected with the drain and tanks, and the Council respectively?

North Riding Architect.

The foundations of the new London County Hall are expected to be completed about the middle of 1913. The central block of the buildings is expected to be completed about three years later.

The Wigton Rural District Council have adopted a scheme, to cost £13,000, for supplying ten parishes in its area with water, to be procured from the Aspatria and Silloth Water Board's gravitation supply. Thirty miles of mains will be required.

Mr. W. P. Robinson, age 31, chief assistant county surveyor and engineer to the County Council of Durham, has been appointed out of 135 applicants surveyor for the northern division of Devonshire, at a salary of £400 a year and £160 travelling allowances.

The Tynemouth Town Council have accepted the tender of Mr. W. T. Weir, of Howdon-upon-Tyne, amounting to £6,200, for the extension of the North Shields fish quay, in order to provide additional boat berthage. The Council is also considering tenders for carrying out a scheme for the reclamation of land to the eastward of the fish market.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects and others are invited to submit full particulars for insertion in this weekly list.)

ENGLAND.

BEDFORDSHIRE.
Cardington.—Church Room: addition.

BERKSHIRE.
Thatcham.—School for 216 places.
Wantage.—Public Elementary School for 200 places.

BUCKINGHAMSHIRE.
Bradwell.—Schools for 400 places.

CORNWALL.
Chacewater.—Council School: alterations and improvements. Mr. S. Hill (of Redruth), Education Committee architect.
Falmouth.—Isolation Hospital: reconstruction of two wards.
St. Ives.—Nineteen workmen's dwellings.

DERBYSHIRE.
Belper.—Midland Railway Company: Goods station new offices.
Derby.—Telegraph superintendent's additional offices for the Midland Railway Company. Company's engineer.
Ripley.—Cottage Hospital. Messrs. Harris & Hunt (of Marehay), contractors (£900).

DEVON.
Exeter, Holsworthy, Ilfracombe, Ivybridge, Lynton, Okehampton, and Paignton.—County of Devon Territorial Force Association: Headquarters buildings.
Plymouth.—Devon R.G.A. (Territorials) headquarters.
Eleven houses, Glenpark and Welbeck Avenues.
Motor garage, St. Andrew Street.
Plympton, Thorverton, Torrington, and Totnes.—County of Devon Territorial Force: Headquarters buildings.

DORSET.
Swanage.—Two houses, Victoria Avenue.

DURHAM.
Chester-le-Street.—Congregational Church and Schools, Front Street (£3,250).
Darlington.—Council School, Durham Road. Borough Surveyor.
Durham.—Workhouse alterations. Mr. Gradon, architect.
South Shields.—St. Bede's R.C. Schools: boys' department for 500 places.
St. Hilda's and St. Mary's C.E. Schools: enlargement for additional 154 and 120 places respectively.
Picture Hall, Chichester Road.
Sunderland.—Synagogue.

ESSEX.
Aveley.—Council School.
Broomfield.—(Supplementary to November 3) Teacher's house at the new Council School. Messrs. C. & W. H. Pertwee, architects.
Dunmow.—Council School.
Harwich and Leyton.—County High Schools.
Thundersley.—Council School.
Witham.—Fire Station. Council Surveyor.

HAMPSHIRE.
Fareham.—Parish Hall, Portchester.
Petersfield.—Rectory, Borough Road (£1,900).

LANCASHIRE.
Bolton.—(Supplementary to November 17) Infirmary extension (King Edward Memorial). Messrs. Bradshaw & Gass, architects.
Rebuilding scheme, Deansgate and Bank Street.
Fazakerley.—Public Elementary School, Barlow's Lane (proposed 900 places).
Oldham.—Church, Burnley Lane.

LEICESTERSHIRE.
Leicester.—Children's Hospital: extension (£6,500).

LINCOLNSHIRE.
Alford.—House, Station Road. Mr. F. Parker, F.S.A. (of Boston), architect.

MIDDLESEX.
Chiswick.—Council Secondary School, Burlington Lane.

NORFOLK.
Dereham.—Town Hall (£2,800). Mr. G. J. Skipper, F.R.I.B.A. (of Norwich), architect.
Great Yarmouth.—Four cottages, Suffield Road, North Gorleston.
Two houses, Albemarle Road, North Gorleston.
Additions to the Yarmouth Stores, Southgates Road.

NOTTINGHAMSHIRE.
Huthwaite.—County School, Crosley Street (for 400 places).
Langley Mill.—Church.
Mansfield.—"King's Head" Inn, Stockwell Gate: rebuilding.
Netherfield.—Labour Club, Dunstan Street: additions.

STAFFORDSHIRE.
Chasetown.—Mining Institute.
Rushall.—Infants' Council School.
Tutbury.—Prince Memorial Chapel (Primitive Methodist)

SURREY.
Belmont.—Church.
Bookham, Great.—Village Hall (Chrystie Memorial), Lower Road.
Cobham.—Infants' Council School (150 places).
Croydon.—Parish Church, Woodside: enlargement (by 350 sittings), baptistery, clergy vestry and morning chapel (£5,000).
Frimley.—St. Mary's Mission Room: enlargement.
Walton and Hersham.—Central Upper Standard School.
East Walton Temporary Council School: enlargement.
Hersham Council School: additional temporary classrooms.
Woking.—Boys' School, Kingsway, Goldsworth Hall, Walton Road.
Worplesdon.—Council School, Wood Street: additions and alterations (£1,400).

SUSSEX.
Horsham.—Council Schools (for boys, girls, and infants).
All Saints' School: enlargement, Roffey.
Girls' School, Denne Road: additions.
Westbourne Southbourne.—Council School: improvements.

YORKSHIRE.
Barnoldswick.—Elementary School for 300 places (£4,000).
Bradford.—Warehouse, North Wing. Mr. William Illingworth, architect.
Brighouse.—Police Station, Park Road.
Keighley.—Baptist Sunday Schools, Albert Street.
Low Moor.—Parish Church: enlargement (by two aisles, porch, and church vestry), £2,000.
Thurnscoe.—Council Offices, Fire Station, and Depôt (£2,000).
Wombwell.—Twelve houses in Barnsley, Brampton and Wath Roads.
House, High Street.
Motor garage and wash-house, Barnsley Road.
Additions to W. Riding C.C. Schools, Park Street.
Worsbro'.—Two houses, Sheffield Road.
Four houses, Birdwell.

SCOTLAND.

Dumbarton.—Public Baths (£7,000 to £8,000).
Dundee.—Students' Hostels, Mayfield estate.
Mills' Observatory (£3,200).
Dunfermline.—Carnegie Public Library: extension.
Edinburgh.—Shop, Morningside Road and Belhaven Terrace.
Forfar.—Parish Church (Steele gift).
Kirn.—Club-house for the Kirn and Hunter's Quay Lawn Tennis Club.
Meigle.—Sir John Kinloch Memorial Hall.
Monimail.—Church: additions and alterations (40 additional sittings).
Renfrewshire.—Consumption Sanatorium (King Edward VII. Memorial), £50,000.
Rothesay.—Hospital extension.
St. Vigeans.—Cookery, laundry and woodwork centre. Mr. Symon, architect.
Stepps.—U.F. Church for 650 sittings (£5,000).

IRELAND.

Athy.—Artisans' dwellings (£4,000).

THE Government of Argentina have earmarked about £1,825,000 for public works throughout the Republic. Of this sum about £121,600 is allocated to Buenos Aires city. The principal works to be carried out consist of the building and enlarging of schools, colleges, hospitals, and libraries, the making of roads, dredging, irrigation and canal works, and bridge building.

PATENT SPECIFICATIONS PUBLISHED DECEMBER 20, 1911.

SELECTED by Mr. James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 22602. Sept. 29, 1910.—T. E. Bridger, c/o Thomas Cook & Son, Ludgate Circus, E.C. Improvements in and relating to safes.

27146. Nov. 22, 1910.—P. E. Shaw, 18 Clyde Street, Leicester. Improvements in or relating to incandescent gas burners.

27571. Nov. 26, 1910.—A. R. Harvey, Loobah Tea Estate, Kanaighat Post Office, North Sylhet, Assam, India. Improvements in crane hooks, spring swivel hooks, and the like.

27633. Nov. 28, 1910.—J. J. Pousett, architect, Lanklaer, Belgium. Apparatus for the displaying of sectional building models.

27657. Nov. 28, 1910. Convention application Dec. 3, 1909.—Emile Pratt, 3 rue Laffitte, Paris. Improvements in radiating and cooling apparatus.

27805. Nov. 29, 1910.—C. E. Reitz, of Reitz, Pennsylvania, U.S. Improvements in ventilators.

27843. Nov. 30, 1910.—A. E. Lamkin, 226 Mitcham Road, and L. G. Godwin, 224 Mitcham Road, Croydon. Improvements in or relating to the manufacture and use of oil gas.

27954. Dec. 1, 1910.—H. J. Read, Lismore, Alma Road, St. Albans. Improvements in electric heaters.

28284. Dec. 5, 1910.—H. W. Hemingway, Marshgate Lane, Stratford, E. Process for preserving or treating stone and like building materials and for producing cement.

28434. Dec. 7, 1910.—Jacob Grossmann, 157 Plymouth Grove, Manchester. Improvements in the treatment of sewage sludge.

28823. Dec. 12, 1910.—Austin Tilden, Sheriden, Yamhill, Oregon, U.S. Improved tool for sharpening and setting saw teeth and fastening handles to saws.

29125. Dec. 15, 1910.—Bruno Scheidemann, 28 Turmstrasse, Berlin. Improvements in apparatus for controlling gas cocks and electric light switches.

29163. Dec. 15, 1910.—L. F. Tooth, of the Commercial Gas Co., Harford Street, Stepney. Improvements in or connected with regenerative gas burners.

29735. Dec. 22, 1910.—J. W. Pickstone, 9 Brook Road, Fallowfield, Manchester. Improvements in the method of and means for ornamenting or for transferring patterns or designs to fabrics, leather, wood, paper and such like.

29858. Dec. 23, 1910.—William Beal, Ltd., Hill Street, Birmingham, and Alfred Beard, 36 Florence Road, Handsworth, Stafford. Improvements in ball and socket joint for gas pendants and for other like uses.

79. Jan. 2, 1911.—Victor Nightingall, 260 Russell Street, Melbourne, Australia. Improvements in electric cooking appliances.

1008. Jan. 14, 1911. Chas. Shaw, architect, Prince's Chambers, Princess Street, Wolverhampton. Improvements in and connected with flushing apparatus.

1336. Jan. 18, 1911.—Frank Candy, 5 Westminster Palace Gardens, Artillery Row, S.W. New manufactures for use in filters.

1580. Jan 21, 1911.—J. T. Henthorne, architect, Green Bank, Chamber Road, Shaw, Lancs. Improved joint for pipes or conduits.

1739. Jan. 23, 1911.—P. W. Flavel, Eagle Foundry, Clarence Street, Leamington. Improved construction of plate rack or plate warmer and heat or splash shield for stoves.

3153. Feb. 7, 1911.—Fedor Silber, Kronprinzenstr., Zabrze, Salesia. An improvement in roofing tiles.

3371. Feb. 10, 1911.—B. J. Levin, Bossington, Ashley Road. Hale. Improvements in sieving machines.

4688. Feb. 24, 1911.—A. P. Sachse, Chemnitzerstr., Limbach, Germany. Improvements in means for pneumatically operating gas valves for lighting and extinguishing gas burners.

5169. March 1, 1911. Convention application March 1, 1910.—J. C. Thouviot, Chaussin, Jura, France. Improvements in or connected with barrows and handcarts, more especially intended for stacking purposes.

5965. March 9, 1911. Convention application March 18, 1910.—The firm of Ehrich & Graetz, 92 Elsenstrasse, Berlin. Improvements in and connected with incandescent gas lamps.

6576. March 16, 1911.—J. H. Cartland, 68 Constitution Hill, Birmingham, and A. H. Collins, 114 Lightwood's Road, Bearwood, Smethwick. Improvements in and relating to apparatus for closing doors and the like.

6929. March 20, 1911.—F. W. Bentley, P.O. Box 4,648, Johannesburg, and Karl Kapernick, Mittelstr. 28, Rathenow, Germany. Safety arresting device for elevators, lifts, conveyors, or the like.

8297. April 3, 1911.—C. D. Saxton, Boise, Ada, Idaho, U.S. Improvements in means for raising water.

11513. May 12, 1911.—J. G. Lastra, 101 Calle Alcata, Madrid, G. Bernstein, 5 Calle Orfila, and C. Salvatierra, 23 Calle Amaniel, Madrid. Improvements in the manufacture of reinforced cement column.

12002. May 18, 1911.—Arthur Johnson, 41 Brettell Street, Dudley. Improvements relating to the means for moulding bricks, tiles, and similar articles.

12384. Aug. 19, 1911.—Isaac Thomasson, 32 Eskrick Street, Bolton. Non-soldered joints for lead pipes or any other soft-metal pipes.

12836. May 29, 1911.—Chas. Back, 37 Uhlandstr., Hamburg, and Rudolf Wacik, 77 Graumannsweg, Hamburg. Process and device for manufacturing marble slabs with inscriptions, ornamentations, and the like in imitation marble.

13511. June 6, 1911. Convention application June 7, 1910.—H. A. Goddard, Ada Street, Concord, near Sydney, N.S.W. Improvements relating to box cores that are used in building hollow concrete walls.

14835. June 26, 1911. Convention application June 22, 1910.—Ferdinand Steinart, 15 Klapperhof, Cologne-on-Rhine. Magnesium lamp.

15552. July 4, 1911.—P. C. Carre, 139 rue Lafayette, Paris. Improvements in fire extinguishers.

15799. July 7, 1911.—F. W. Magee, 391 William Street, London, Ontario, and T. W. Baker, 653 Talbot Street, London, Ontario. Gas regulator.

15899. July 8, 1911.—Victor Nightingall, 260 Russell Street, Melbourne, Australia. Improvements in and applicable to apparatus for electric cooking and heating.

16506. July 18, 1911.—G. B. Upham, 50 Congress Street, Boston, Mass., U.S.A. Improvements in processes for manufacturing bituminous paving blocks.

16519. July 18, 1911.—F. L. H. Sims, 155 Dunn Avenue, Toronto, Canada. Improvements in key bolts.

16631. July 19, 1911.—Robert Hudson, Gildersome Foundry, near Leeds. Improvements in fasteners suitable for windows, doors, gates, shutters, box-lids, and the like.

16669. July 20, 1911.—S. H. March, Redclyffe. Oswald Road, Chorlton-cum-Hardy, Manchester, and H. H. Ashbridge, High Bank, Bolton Road, Pendlebury, Lancaster. Improvements in grinding machines.

18608. Aug. 17, 1911.—Paul Schwenzow, Unkel-on-Rhine. Improvements in machine for stamping plastic material into moulds in the manufacture of pipes, tuyères, and like bodies.

18856. Aug. 22, 1911.—Edouard Benedictus, 25 rue de Fourcroy, Paris. Improvements in or relating to strengthened glass.

19680. Sept. 4, 1911. Convention application Feb. 17, 1911.—Mathias Frankl, 90 Laxenburgerstr., Vienna. A process of and apparatus for the manufacture and sharpening of saw blades.

20104.—Sept. 11, 1911.—Rev. Frank Iliff, Levenshulme Rectory, Manchester. Improvements in chimney pots or cowls.

20568. Sept. 18, 1911.—G. F. H. Beard, The Limes, Crescent Road, Crumpsall, Manchester, and J. W. Scott, 8 Brook Road, Heaton Chapel, Stockport. Improved supporting means for spirally-guided gas holders.

22135. Oct. 7, 1911. Convention application Oct. 21, 1910.—Henri Marliere, 115 rue de la Baille, Tourcoing, France. Improvements in or relating to safety-chains for door, windows, or the like.

THE Birmingham Royal Society of Artists are considering a scheme for the rebuilding of their present gallery in New Street.

THE Greenock Corporation have agreed to approach the Secretary for Scotland for powers to borrow £20,000 for extension of the electricity works.

MR. ALFRED ROUTLEDGE, of Stanley, has been appointed surveyor to the Stanley Urban District Council, in succession to his father, the late Mr. J. Routledge. There were 199 applicants, and in the final ballot Mr. Routledge received eight votes, as against six recorded for Mr. H. Pickering, surveyor, Northampton. The salary is £250 per annum.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 642. Jan. 10, 1911.—W. C. Jennings, 39 Station Road, Ashley Down, Bristol. An improvement in sliding and pivoted windows. The object of this invention is an improvement in window frames and sashes providing for the sliding in a vertical or nearly vertical direction of one or more sashes. Each sash not only slides in the grooves provided for the purpose, but shall be so pivoted to a hanging stile that it shall be capable of opening on pivots to a plane convenient to enable the exterior face of glass to come into a position that it can easily be cleaned, thus allowing both faces of glass to be cleaned from the same position, preferably inside the building. The window frame is made with box cased sides to take weights K K K and pulleys, in pulley stiles N forming part of box casings. The sashes slide in the frame guided by top beads F, parting beads J, or projecting casings, thus forming a single groove in the case of one sash or a double groove in the case of two sashes. Sash stiles (see Figs. 1 and 2) on each side of sash are formed in two parts rebated together. The part which fits into groove is termed the sliding stile (see Fig. 2), the sash stile fitting this (see Fig. 1). The sliding stile and sash stile are pivoted at a point preferably below the centre, so that sash can open inwards, leaving the sliding stile still contained between stop beads, parting beads, or projecting casings. In the sliding stile I is a groove G to receive the sash cord C, which is brought from weights K K K in box casings over pulleys in frame, through a groove G in the sliding stile I, and threaded through a small pulley D (Fig. 2), in the sliding stile. The end of cord C is fixed to sash stile with attachment fitting, the cord being knotted and fixed under bent part of attacher B. Fig. 1 is a perspective view of sash stile. Fig. 2 is a view of sliding stile containing pulley. The cord is passed down the groove and threaded under pulley. Fig. 3 shows horizontal section of box framing with its various parts. A is the diverting pulley frame in which diverter pulley is pivoted or fixed. B, the cord attacher. C, the cord. D, the diverting pulley which guides sash cord at an angle. E, the outside casing. E E, the inside casing. F, the stop bead with groove M. I, the sliding stiles with groove G. H, the sash stiles pivoted to sliding stile. J, the parting bead. K, the weights which may consist of a single weight for each pair of sashes each side of window frame with a sheave pulley in each, and a cord passing under sheave pulley, the weight being connected at one end to top sash, and the other end to bottom sash after passing over pulleys in pulley stiles. L, is a plate fixed to each sliding stile engaging in groove M in stop bead, or in MM of casting E. N, is the pulley stile with sash pulleys fitted to same. When it is desired to clean the outside of glass of top sash any fastenings employed are disengaged, and bottom sash is raised into an open rebate formed by a false head. This then allows the top sash to be lowered sufficiently far to clear under the bottom sash, the cords sustaining the weight of the sash. Pivot centres being low the larger portion of sash is thus brought into the room for cleaning purposes. When bottom sash has to be cleaned the fastenings are disengaged, and the sash swung over and sustained on cords. Nov. 22, 1911.

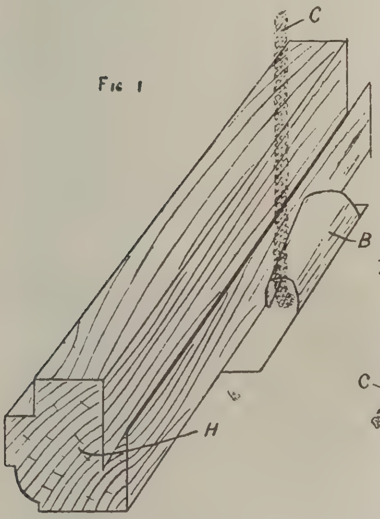


Fig 1

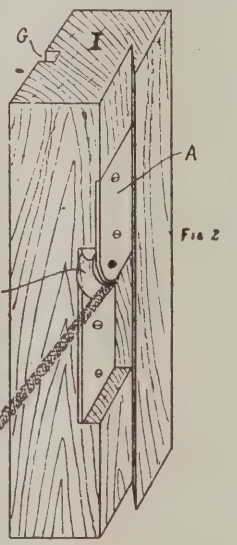


Fig 2

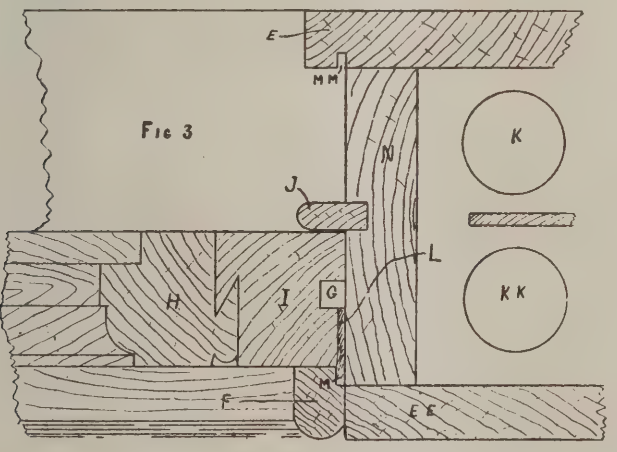


Fig 3

NEW CATALOGUES.

Messrs. Robert Jenkins & Co., Rotherham, have produced an excellent catalogue which deals with some of the various apparatus they know so well how to manufacture. The pages number a little over a hundred, and are well printed, concisely written, and adequately illustrated. Particular attention is drawn to the Jenkins patent steel sectional boiler of an improved design, the "Haslar" boiler, for hot-water supply, their recent "Eausho" hot-water supply boiler, and the Dual Independent Boiler, for combined heating and hot-water supply service. All of these embody new ideas, and are confidently recommended by the patentees and makers. Concerning the two latter specialities, we gave some interesting particulars in our Supplement of August 11. But we may add that Messrs. Jenkins & Co. have since received substantial testimony as to their efficacy. For instance, they appear to have done remarkably well under difficult conditions at the last Yorkshire Agricultural Show. Besides a multiplicity of boilers, the catalogue shows various pipes and connections, furnace fronts, elbows, air cocks, hot-water valves, cylinders, pans, and other fittings.

Joseph Wright & Co., Tipton, have devoted a special catalogue to their important chain and anchor departments, which is distinct from their engineering department and forge department. In connection with it they are also issuing a large working load table for hanging up in workshops. Perhaps the most widely known brand of any is their "A 1 Special Best Best J. W. & Co. (Regd.)" for chains and iron. This brand is exclusively rolled from special material by the latest process, and is sound, reliable, lasting, and most economical. It is an easy step from chains to hooks, pulley blocks, and hand hoists. All these play an important part in the building trades, and are succinctly dealt with in the latest catalogue.

The electrical world moves so rapidly that it is no wonder to find the General Electric Company, Ltd., 67 Queen Victoria Street, E.C., have had to issue a thirteenth edition of their new list—Section S—dealing with electric light supplies. Its publication has, we are informed, been delayed to include a considerable number of new designs and improved apparatus. The prices are as low as possible consistent with first-class material and workmanship, and all the accessories are of their own British manufacture throughout. Attention is particularly called to the "Home Office Accessories," specially designed and manufactured to comply with the requirements of the Electrical Inspector of Factories and Workshops—namely, distribution boards, shielded fuses, branch switches, wall plugs and adaptors, factory plugs, cut-outs, "Coates" lamp-holder shields, and china lamp-holders. The new "Slick" flat switch (introduced since the issue of their last list) has met with great favour, and the firm confidently assert that there is no better value on the market.

From the Carron Company we have received a cloth-bound copy of the new edition of their Stable, Cowhouse, and Piggery Fittings Catalogue. What they say about the horse in the following introduction applies equally well to cows and pigs: "The condition of the stud largely depends on the stabling. Proper drainage and ventilation are just as essential to the well-being of the horse as proper food. In 'Carron' stabling every requirement has been anticipated to ensure the comfort and health of the animals, as well as the convenience of those attending them. 'Carron' Stable, Cowhouse, and Piggery Fittings are the outcome of 150 years' experience, and in point of utility, durability, and sanitary efficiency are regarded as 'The World's Standard.' 'Carron' fittings have been adopted by the leading stockbreeders and corporations, and by the gentry and nobility throughout the country." The catalogue is prefaced by some brief suggestive notes and hints for those about to build. The Company seem to have overlooked no detail which can promote the well-being of the live-stock, and their catalogue is marked with the clearness and excellence characteristic of the Carron products.

John Tann's Reliance Safes have won many honours since the business was first established in 1795. We do not know what the earliest was; but we believe the latest (but not the last) was the selection of one of the "Anchor Reliance" safes by his Majesty for securing the Crown jewels worn at the recent Durbar on the voyage to India on the *Medina*. Another very recent testimonial is in the form of a letter from a firm of London manufacturing jewellers, who report that in October last a gang of well-equipped burglars were unable to force an "Anchor Reliance" safe containing about £3,000 worth of goods after some hours of obviously desperate work. Messrs. D. Kirkaldy & Son in April last carried out experiments to ascertain the resistance to drilling of four pieces of their hardened steel safe plates. "It was found impracticable to drill holes through the plates with steel drills in a power drilling machine, the drills being either blunted or shattered when reaching or tried on the hardened steel layer in the plates." John Tann's latest catalogue is remarkably complete, for, besides showing safes of all kinds, strong rooms, and strong-room doors, it includes deed and cash boxes, steel shelving, special ventilators, strong-room fittings, party-wall doors, and tabernacle safes. We may note in conclusion that Mr. Tann has recently removed from his old address, No. 11 Newgate Street, to more commodious premises, almost exactly opposite, and that the new offices and showrooms are now at No. 117 Newgate Street, E.C.

A clever little booklet is that issued by the Yost Typewriter Co., calling attention to the value of their machines. In a busy newspaper office the number of circulars and trade catalogues forwarded is enormous, and it is not always possible to take note of every one forwarded. The Yost circular claims attention from the excellent way in which it has been produced.

VARIETIES.

The Tynemouth Town Council have adopted a recommendation for the purchase of two school sites and the building of a junior mixed school and a mixed school, each for 550 children.

The Reading Board of Guardians are about to expend £4,185 on the provision of headquarters for their scattered homes. The plans have been prepared by Mr. W. Roland Howell, architect.

The tender of Messrs. Hardy & Co., Woking, of £5,192, for carrying out the work of the proposed sewerage extensions, has been accepted by the Frimley Urban District Council. Sixteen tenders were received.

The London and North Western Railway Company have decided upon important improvements at New Street Station, Birmingham, and an extension of the Queen's Hotel adjoining, involving an outlay of £100,000. By far the larger portion of this amount will be expended on the enlargement of the hotel by the erection of a new wing.

The Abertillery and District Water Board have accepted the tender of Messrs. Underwood & Brother, of Dukinfield, Cheshire, at £261,745, to construct a dam and reservoir in the Grwyne Fawr Valley, Breconshire, a new road ten miles long, water mains thirty-three miles long, a tunnel through the Coity Mountain, Blaenavon, and service reservoirs at Abertillery and Abercarn. The service will supply the greater part of industrial Monmouthshire. The engineer is Mr. Baldwin Latham, of Westminster.

The Board of Education have finally approved the plans and specification for the construction of a new swimming-bath and of alterations to the gymnasium at Reading. The Education Committee have instructed Messrs. Henry Cooper & Sons, surveyors, to prepare the bills of quantities preparatory to inviting tenders from five local builders.

Eight sets of plans have been submitted for the town planning competition at Halifax, in which Mr. J. H. Whitley, M.P., offered awards amounting to £150. Professor Adshead, of the Department of Civic Design, Liverpool University, will visit Halifax shortly to go over the areas concerned, and afterwards will consider the merits of the various plans.

The Corporation of Hertford have deposited a Bill for next session by which Parliament will be asked to confirm an agreement between the Marquis of Salisbury and the Corporation for the preservation of Hertford Castle and its grounds as a place of historical interest and as a place of recreation for the public. The Marquis of Salisbury grants to the Corporation the castle and grounds of about five acres under lease for a term of seventy-five years at the yearly rental of 2*s.* 6*d.*

The British Thomson-Houston Company desire us to announce that they have organised an illuminating engineering department to freely give expert assistance to architects, engineers and contractors in the planning of illumination along the most approved and efficient lines. This department is capable of undertaking all kinds of illuminating engineering work from the home to the office, and from the shop to the largest interiors, depots, railway stations, assembly halls, auditoriums, &c. The illuminating engineering department of this company have offices and engineers at Rugby, London, Manchester, and Sheffield.

An expenditure of £100,000 is suggested towards the establishment of the Federal capital city of Australia. It is proposed to acquire the privately owned lands within a radius of seven miles of the city site, and other properties on which works for various purposes will be constructed, such as pipe lines, reservoirs, bridges, weirs, &c. Provided these lands are acquired immediately, a sum of £50,000 could be profitably expended on necessary works during the year. These works embrace the construction of a weir on the Cotton River, a bridge over the Murrumbidgee River, laying of water pipes, construction of a reservoir, a temporary railway from Queanbeyan to the centre of distribution of material, power plant, brickmaking plant, supply of timber, road-making, &c.

The various carpenters' and joiners' societies and furnishing and cabinet makers' societies in London have made a number of important alterations in their working rules for the district, and notice of them has been sent to the London Master Builders' Association. The most important of the proposed new rules stipulate for an increase of 1½*d.* an hour in wages, bringing the minimum rate to 1*s.* per hour; a reduction of the working hours in summer from 50 to 47 per week, the winter hours to remain at 44 per week as at present; and in order to reduce overtime as much as possible payment for overtime at the rate of double time. Six months' notice has to be given to the master builders to terminate existing rules, the new proposals coming into operation on June 8, 1912.

TRADE NOTES.

Under the direction of Mr. Arthur C. Blomfield, M.A., Boyle's latest patent "air-pump" ventilators have been applied at the Bank of England, Threadneedle Street, E.C.

Messrs. W. Potts & Sons, Ltd., clock manufacturers, Leeds, have erected new clocks at the following places:—Abbey Town, Cumberland, illuminated clock and bell; clock and bell, Loch Lomond, Scotland; illuminated clocks with dials at the Conservative Club, Clayton, Manchester, and at Clayton West, Huddersfield; a clock striking hours, bronze dial, Sherburn, near York; a Coronation clock at Holme, near York; a chime clock and illuminated dials, Lower Darwen, Blackburn; St. Aidan's Church, West Hartlepool; Easton, near Middlesbrough. Messrs. Potts have clocks to erect at Pelton Church, near Newcastle-on-Tyne; Ashington Town Hall, Northumberland; Brough, Westmoreland; West Butterwick Church, Lincolnshire; and large dials to a church in London.

The new Council Schools, Macclesfield, and the Addington Schools, Surrey, have been supplied with Shorland's warm-air ventilating patent Manchester grates. The additions to the Colchester Infirmary are being supplied with Shorland's warm-air ventilating patent Manchester stoves, with descending smoke flues. The new picture theatre, Featherstone, and the church of the Holy Trinity, Southport, are being ventilated by Shorland's patent exhaust roof ventilators. All the above were supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

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THE ARCHITECT AND CONTRACT REPORTER.

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VOL. LXXXVI.—No. 2245. FRIDAY, DECEMBER 29, 1911. [*Registered as a Newspaper at the General Post Office.*] { PRICE, 4*d.* BY POST, 4½*d.*

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THE ARCHITECTURAL ASSOCIATION.

JANUARY 6th.—First Spring Visit to St. Paul's Girls' School Brook Green, Hammersmith, by kind permission of the Architect, Mr. Gerald C. Horsley, F.R.I.B.A. Members to meet at the School at 2.30 p.m. Nearest Stations: Hammersmith Broadway (District Railway) and Shepherd's Bush (Tube)

JANUARY 15th—Ordinary General Meeting at 18 Tufton Street, Westminster, S.W., at 7.30 p.m. Paper by Mr. E. F. Strange, entitled "Alfred Stevens,"

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DEATH

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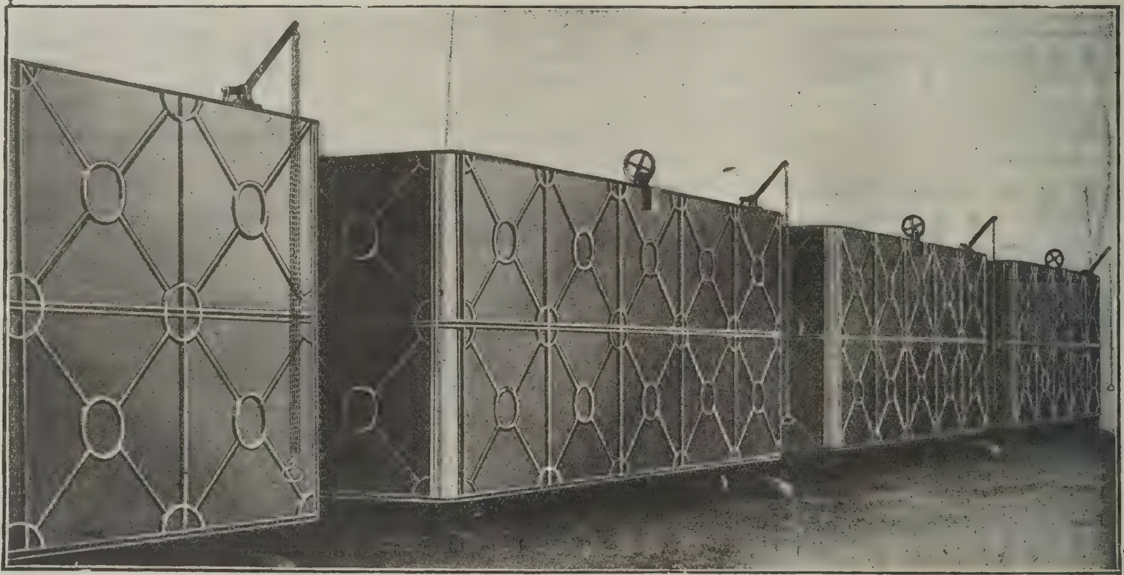

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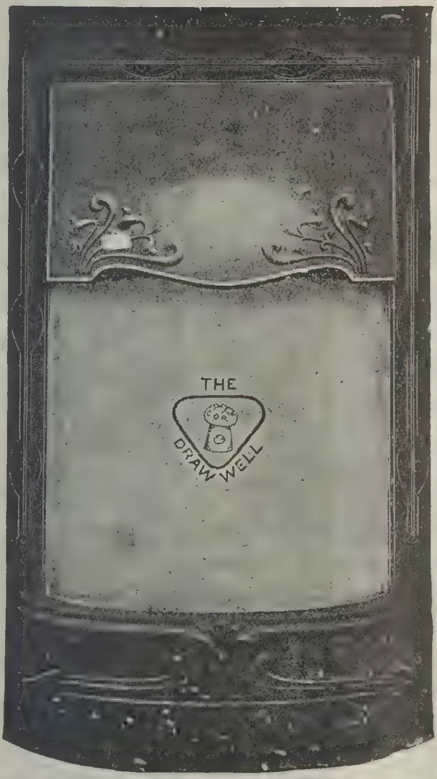

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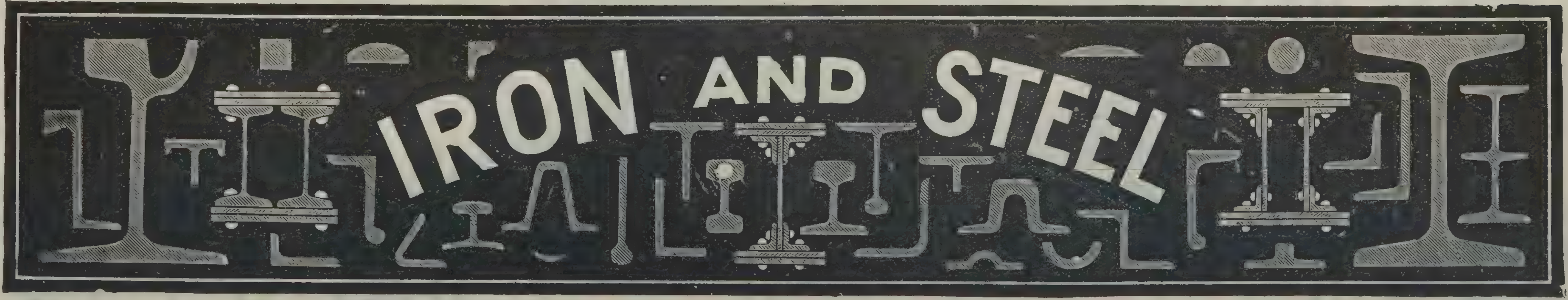

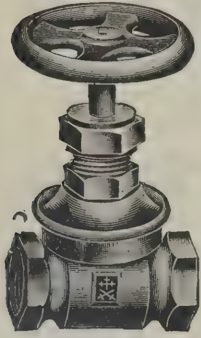

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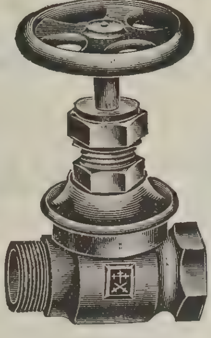

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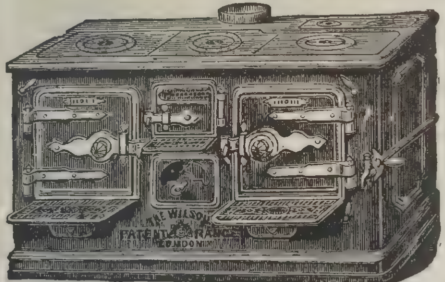

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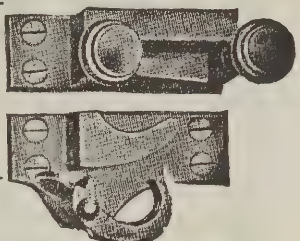

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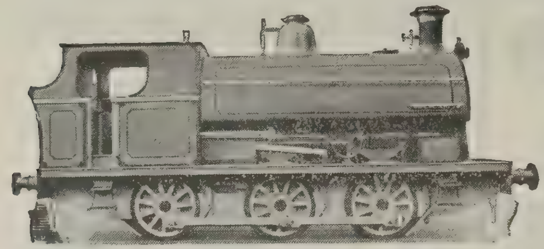

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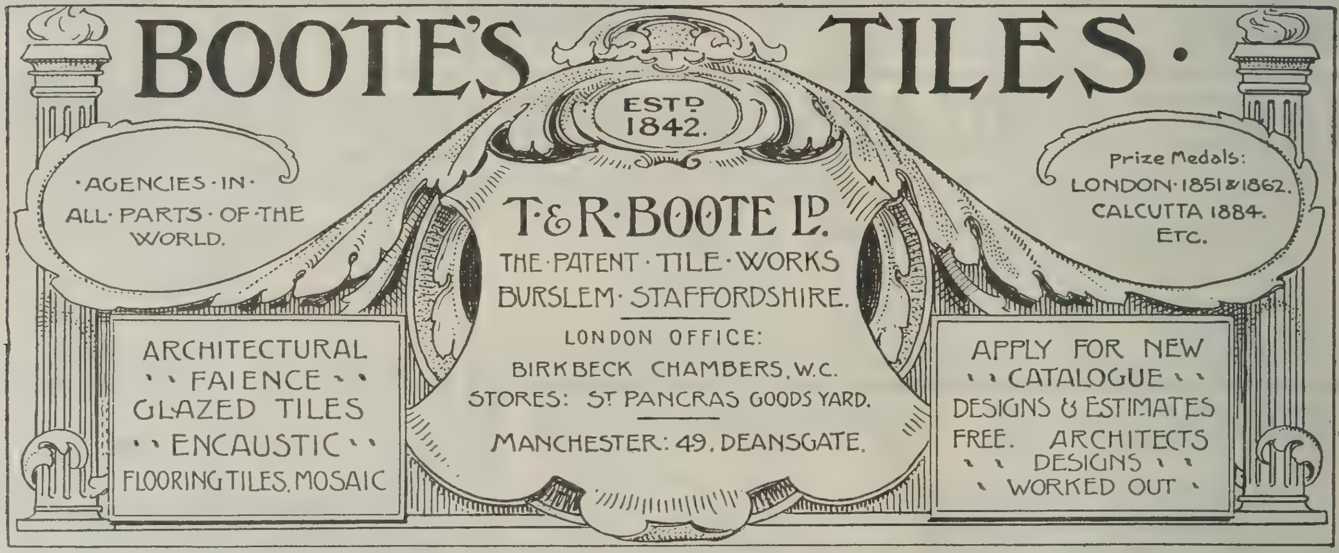

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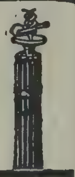

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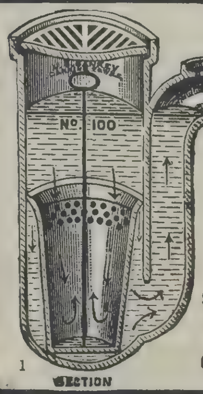

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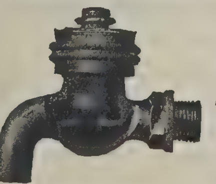

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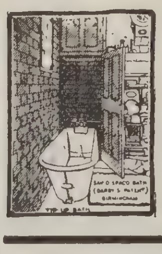

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TOWN PLAN

LORD ABERCONWAY and the Trustees of the Prestatyn Estate invite DESIGNS for the laying out of the Estate. Designs to be delivered on or before March 15, 1912. Premiums £50, £30, and £20. Judge, Mr. H. V. Lanchester, F.R.I.B.A.

Applications for copies of Conditions, Plan, and Bye-laws, and accompanied by a deposit of 10*s.* 6*d.*, which sum will be returned to Competitors who submit bona-fide designs or return the conditions, etc., within 14 days of their receipt, should be sent on or before January 8, 1912, addressed to Lord Aberconway and the Trustees of the Prestatyn Estate, 33 Henrietta Street, Strand, W.C.

BOROUGH OF BANBURY.

THE Town Council of the Borough of Banbury invite DESIGNS for Workmen's Dwellings, to be erected on a site within the Borough.

Applications for particulars, accompanied by a deposit of Ten Shillings, which will be returned on receipt of bona fide designs, should be made to the undersigned.

Designs must be sent in to me not later than the 8th day of January, 1912.

ARTHUR STOCKTON,
Town Clerk.
Town Hall, Banbury
December 5, 1911.

URBAN DISTRICT COUNCIL OF SPENNYMOOR.

ERECTION OF A PUBLIC HALL, MARKET AND OFFICES, &c.

THE above Council invite COMPETITIVE PLANS and DESIGNS of a Public Hall, Market and Offices, etc.

Particulars of the accommodation required, and of the conditions of the competition, together with a plan of the site and the necessary levels, may be obtained on payment of a deposit of £2 2*s.* 0*d.*, which will be returned on receipt of a bona-fide design.

Three premiums are offered, viz., £50, £25, and £10, as first, second and third respectively.

The competitor whose plans are considered most suitable will be awarded the first premium and will be engaged to carry out the work, in which case his premium will merge in his commission.

The Council are not bound to accept any of the designs submitted.

The designs obtaining premiums are to remain the property of the Council.

Designs must be delivered at my office not later than January 9, 1912.

Council Offices, (By Order), F. BADCOCK,
3 James Street, Spennymoor: Clerk to the Council
November 25, 1911.

TENDERS.

TO BUILDERS, &c.

THE Guardians of the Poor of Plymouth invite TENDERS for Alterations at the Workhouse, Plymouth. Persons desirous of tendering can inspect the plans and specifications at the Offices of the Architects, Messrs. Thornely, Rooke, Barron, No. 11 The Crescent, Plymouth, between the hours of Nine and Five (Saturdays Nine to Twelve), up to the day on which the tenders are to be delivered, viz., on or before Tuesday, January 2, 1912, at Ten a m

Tenders, endorsed "Tender for Accommodation for Financial Clerk," are to be sent in addressed to the undersigned.

The Guardians do not bind themselves to accept the lowest or any tender.

W. H. DAVY.
Clerk to the Guardians,
Clerk's Offices, Greenbank Road, Plymouth.
Dated December 15, 1911.

BOROUGH OF YEOVIL.
HOUSING SCHEME.

BUILDERS are invited to TENDER for the Erection of 146 Houses at Yeovil.

Applications for plans and specifications, accompanied by a deposit of One Guinea, which will be returned to bona-fide tenderers, should be made to the undersigned. Tenders must be delivered by January 1, 1912.

H. B. BATTEN,
Town Clerk.
Yeovil, December 11, 1911.

MANCHESTER EDUCATION COMMITTEE.

TENDERS are Invited for

(1) The Erection of the New Municipal School of Domestic Economy, High Street, Chorlton-on-Medlock, Manchester;
(2) The Supply of Red Terra Cotta; and
(3) The Supply of Buff Terra Cotta in connection therewith.

Plans may be seen and copies of quantities (including the respective specifications) may be obtained on and after Saturday next, December 16, at the Education Offices, Deansgate, Manchester, on payment of the following deposits, which will be returned on receipt of a bona-fide tender:—(1) £2 2s., (2) £1 1s., (3) £1 1s.

Tenders on the respective forms and in the respective envelopes provided must be delivered at the Municipal School of Technology, Sackville Street, Manchester, not later than 9 a.m. on Saturday, January 6, 1912. Cheques to be made payable to the Accountant, Education Offices, Deansgate.

The Committee do not bind themselves to accept the lowest or any tender.

THOMAS HUDSON,
Town Clerk.
December 9, 1911.

LANCASHIRE EDUCATION COMMITTEE.
To Contractors.

THE Lancashire Education Committee are prepared to receive TENDERS for the Erection of an Elementary School at Milnrow, near Rochdale, to accommodate 400 children.

The plans may be seen and bills of quantities obtained at the office of the County Architect, Mr. Henry Littler, 16 Ribblesdale Place, Preston, by payment of a deposit of £2 (which will be returned upon receipt of a bona-fide tender).

The Committee do not bind themselves to accept the lowest or any tender.

Tenders must be delivered before Twelve o'clock Noon on January 5, 1912, sealed and endorsed, to J. A. Grindrod, Esq., 32 Lord Street, Rochdale.

HARCOURT E. CLARE,
Clerk to the Lancashire County Council

For late small type advertisements, see page 23 of Supplement.

TENDER.

G. R.

WAR DEPARTMENT CONTRACT.

THE Secretary of State for War hereby invites TENDERS for the following work:—The Demolition of Water Tower and the erection of new Administrative, Operation and Ward Blocks and Boiler House, at the Military Hospital, Fort Pitt, Chatham, in the Eastern Command.

Plans, specification and conditions of contract may be inspected at the office of the Director of Barrack Construction, 80 Pall Mall, London, S.W., or at the Barrack Construction Office, Old Government House, Line Barracks, Chatham, from January 1 to January 12, 1912, inclusive.

Those desiring to tender and to receive a copy of the bills of quantities must apply to the Director of Barrack Construction not later than Friday, January 5. The application must be accompanied by a deposit of Ten Shillings, which will be returned if a bona-fide tender is received from the applicant, Cheques or orders to be made payable to the Assistant Financial Secretary, and crossed "Bank of England for credit to Army Funds."

Tenders on the form supplied with the bills of quantities must be delivered in sealed envelopes, marked "Tender for Remodelling and Extending the Military Hospital, Fort Pitt, Chatham," not later than 12 noon on Monday, January 15, 1912, addressed to the Director of Army Contracts, War Office, Whitehall, London, S.W. The bills of quantities should accompany tender in a separate sealed envelope, similarly addressed, and marked "Bills of Quantities for Remodelling and Extending the Military Hospital, Fort Pitt, Chatham," with the contractor's name and address thereon.

The Secretary of State does not bind himself to accept the lowest or any tender.

(Signed) H. DE LA BÈRE,
Director of Army Contracts.
War Office,
Whitehall, London, S.W.
December, 1911.

AUCTION.

By EDWIN FOX, BOUSFIELD, BURNETTS & BADDELEY.
At the Auction Mart, on WEDNESDAY, JANUARY 10
at 2 o'clock, in one lot.
By direction of the trustees of the will of Mr. Edward Matyear, deceased.

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PUPIL requires position as IMPROVER in an Office (Country preferred) where ecclesiastical work is done.—Box 297, Office of this Journal.

ARCHITECT'S ASSISTANT (A.R.I.B.A.). Ten years' experience in London and provinces. Working drawings, detail specifications, surveying, etc. Excellent testimonials.—H. J. WILSON, 99 Park Road, Peterborough.

ARCHITECT requires POST as IMPROVER in busy office. Three years articles, two years assistant. Small salary.—Address BROOK HOUSE, Newport, Shropshire.

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CLERK OF WORKS desires ENGAGEMENT. Thoroughly experienced in domestic, public, and reinforced-concrete work. Abstainer. Excellent testimonials.—REX, 10 Addiscombe Road, Watford.

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RESPECTABLE MARRIED WOMAN, with excellent references, desires an appointment as CARETAKER of premises, Attendant to Ladies' Lavatories, or any position of trust of like nature.—Box 122, Office of "The Architect."

WANTED Appointment as CARETAKER of premises or any position of trust by ex-sergeant of police (retired). Highest references can be given. Resident in country, but would like to return to London.—Box 290, Office of 'The Architect and Contract Reporter."

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The house contains on the ground floor entrance hall, drawing, dining and morning rooms, good kitchen, scullery, and well ventilated larder with housemaid's pantry, hot and cold supply, lavatory, and w.c. At the rear of the premises necessary servants' offices, coal shed, stores, cupboards, &c.

On the half landing one bedroom, on landing to right two good bedrooms, bathroom, and w.c. On the left hand one large bedroom, with dressing room, and good bedroom adjoining, the three en suite, but detachable by sound English made doors.

The whole of the interior walls of the house are built with best bricks, the roof is thoroughly water-tight, in fact the whole house is substantially built.

The Garden contains one large tennis lawn and a croquet lawn, and is well stocked with flowering shrubs, trees, rose. &c.

Opening from the drawing room is a well constructed greenhouse.

The house was valued for present owner by Messrs. Bissiker, Surveyors, at £1,350.

The garden has since been enlarged by an extra freehold Plot, for which the present owner paid £285.

The whole to be sold for the sum of £1,450, or near offer.

If disposed of during the next two months £800 may remain on mortgage at 4 per cent. Or the whole would be let to a good tenant on three years agreement at £75 per annum, or on 7, 14, or 21 years lease at £65 per annum. The premises are let at £60. The house is in good decorative repair.

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On the Walls, Cologne.
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The ARCHITECT

AND

Contract Reporter

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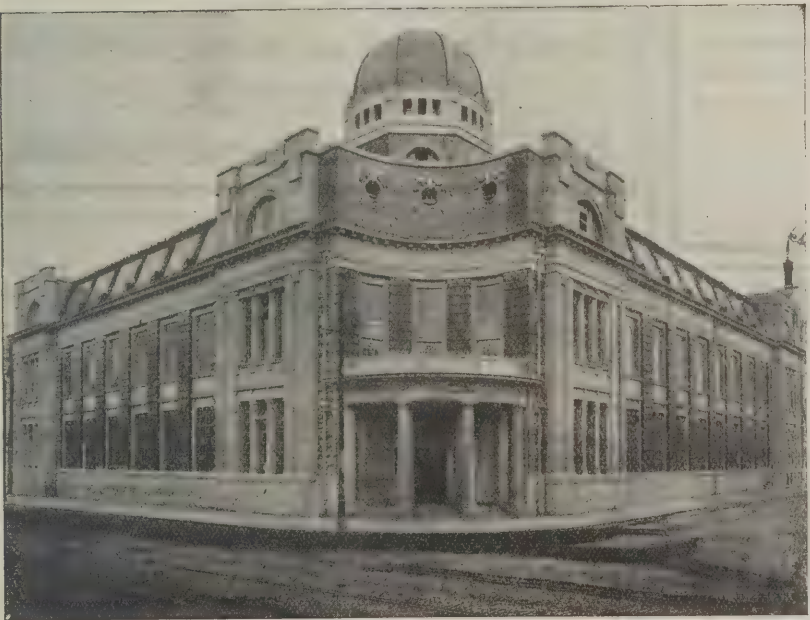

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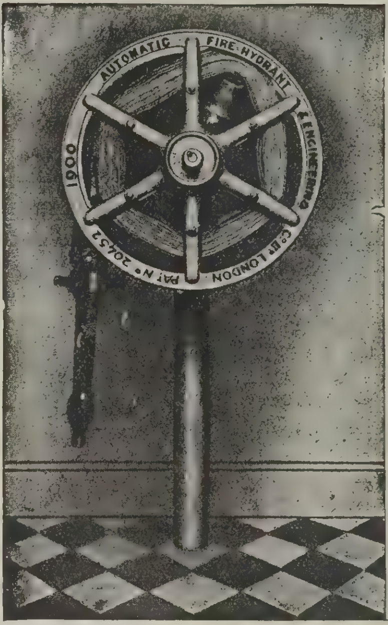

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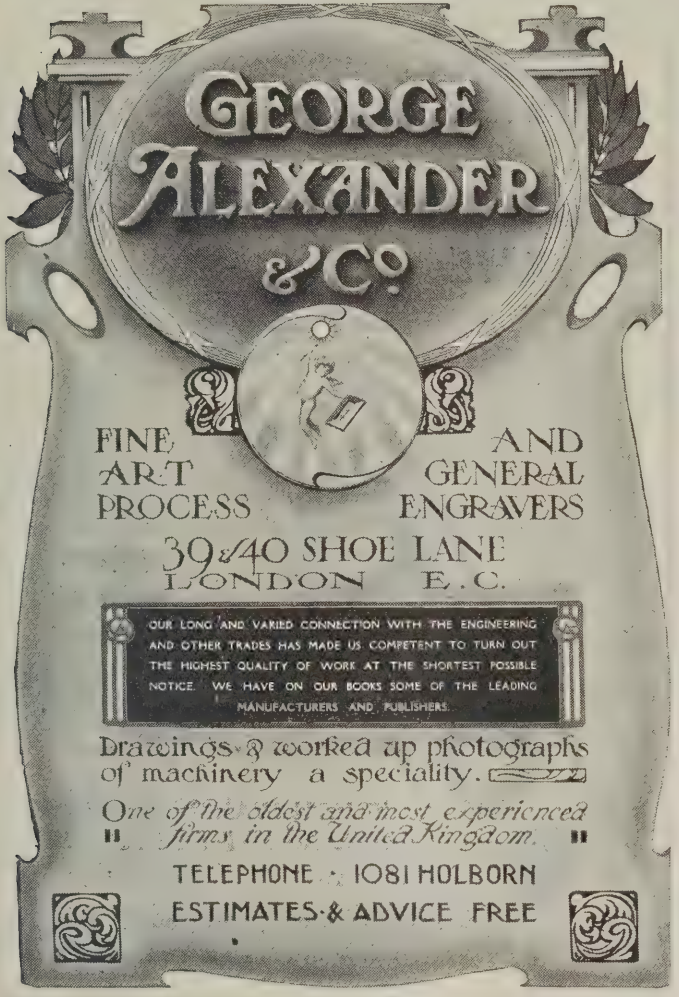

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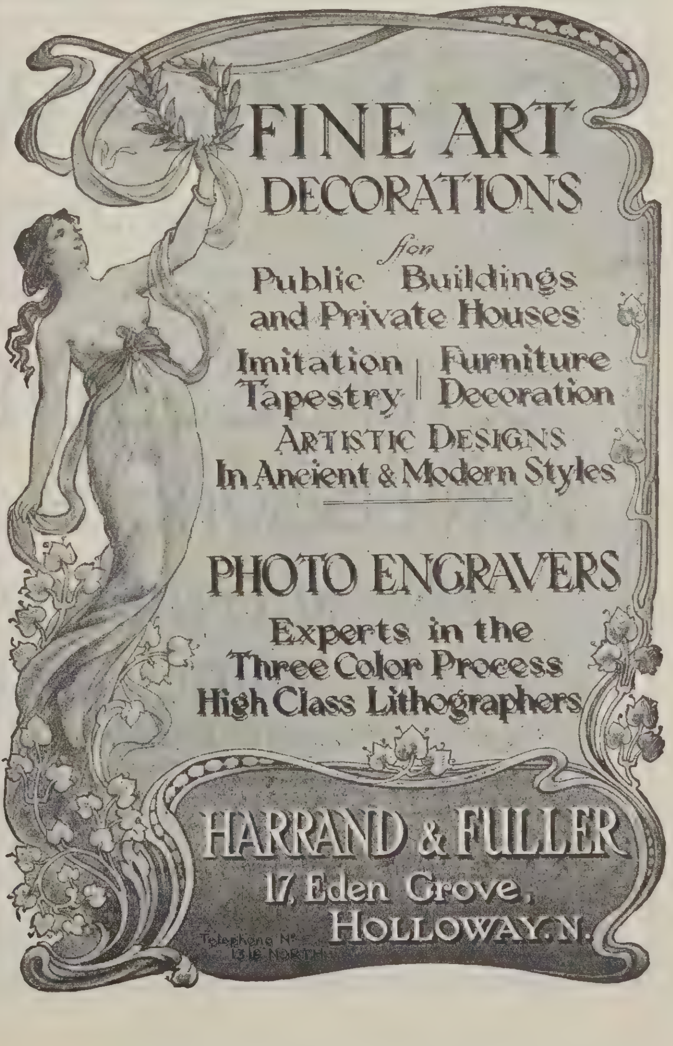

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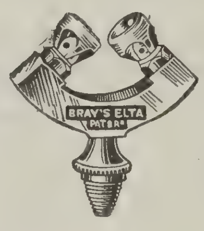

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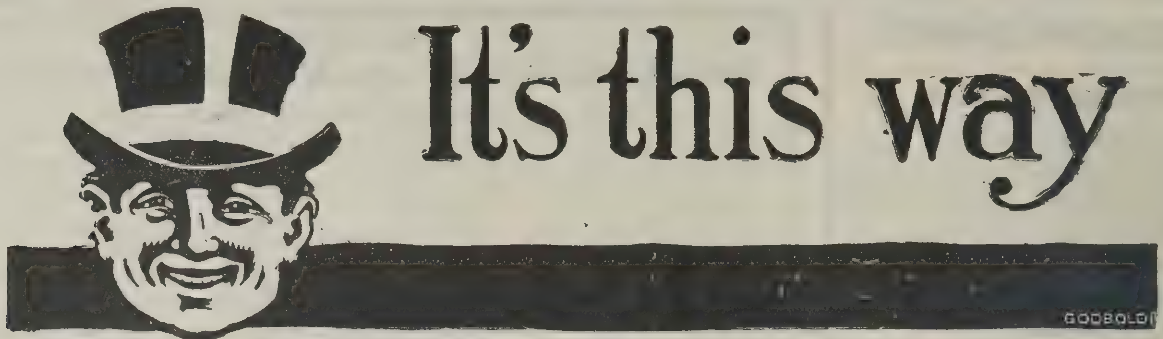

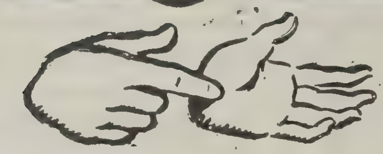

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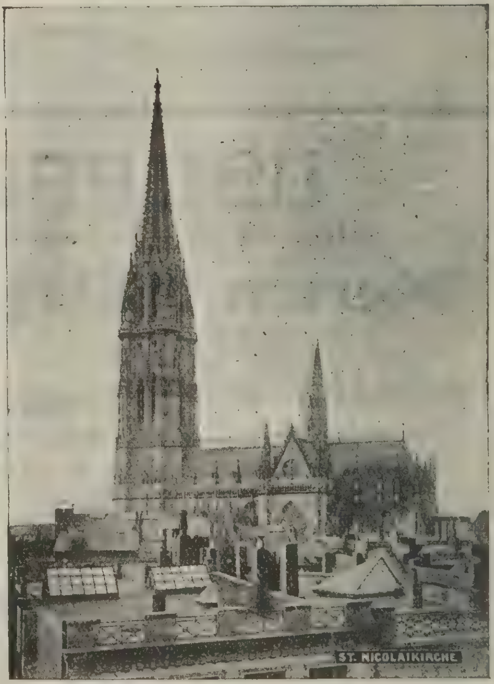

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